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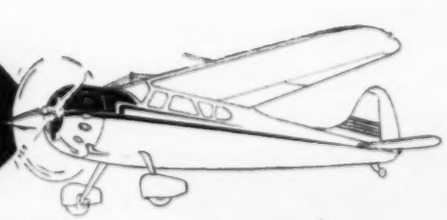

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AVIATION PRODUCTS

B-47 STRATOJET PRODUCTION POOL for accelerated output in Kansas, Oklahoma and Georgia by Boeing, Douglas and Lockheed got under way last month at conference in Wichita with USAF. Seated at table, left to right, are: Harry Woodhead, vice president-general manager, Douglas-Tulsa; Earl Schaefer, vice president-general manager, Boeing-Wichita; Col. H. S. Jones, B-47 project officer; F. W. Conant, Douglas senior vice president; Wellwood Beall, Boeing vice president, Seattle; J. V. Carmichael, vice president-general manager, Lockheed-Marietta (Ga.); R. R. Kearton, Lockheed master scheduling manager.

—(Boeing Photo.)

expenses will eventually approximate $3,000,000, this estimate means each mini-twin will have to return only about $2,000 in tooling and developmental costs, or about 4 per cent of the market price — an investment ratio to price and market far below that of most postwar lightplane designs and considered more practical of achievement. Latest announced details on both mini-twins are published in this issue.

TWO "VERY UNUSUAL" VERSIONS OF THE B-36 are being produced at Convair in Fort Worth, said LaMotte Cohu, president, in commenting on the new order for all-jet, swept-wing versions of the intercontinental bomber. His comment was made at a luncheon commemorating the 10th anniversary of ground-breaking for construction of the big plant,

(Continued on page 32)

AIR Report

Significant Trends and News

THE NEW BEECH AND AERO DESIGN MINI-TWINS ARE MAKING AVIATION HISTORY even before a single one has been delivered to a customer. Never have private owner airplanes priced above $15,000 received such immediate acceptance on the market. . . . **BEECH HAS ORDERS FOR A FULL YEAR'S PRODUCTION** of its Model 50 Twin-Bonanza, with cash deposits from owners for almost 100 airplanes at prices beginning at $44,950. . . . **AERO DESIGN & ENGINEERING COMPANY** in Oklahoma City has cash deposits covering all the production originally scheduled — 20 airplanes priced at $45,000 each — and has started an additional 20 Model 520 Aero Commanders in production in anticipation of immediate orders.

AN INDUSTRY PHENOMENON WITHOUT PRECEDENT, this $6 million in advance sales of newly-designed private owner airplanes by two companies holds much significance. It is an accomplishment reflecting highest design-engineering-production standards; confirming private air transportation's usefulness, widespread acceptance and essentiality to business firms and executives, and testifying to a tremendous pent-up demand for small twins generated by private airplane reliability and utilization.

SALES OF 1,500 MINI-TWINS during the next several years are forecast as a conservative estimate on which both Beech and Aero Design projects are based (750 planes each). Since total investments by both companies in tooling and developmental

FLIGHT MAGAZINE

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MAY, 1951 VOL. 35, No. 5

COVER: Latest pictures of Beechcraft's Model 50 Twin-Bonanza are shown on the cover and on pages 14, 15, 30, revealing many details for the first time. Beech has already received orders and deposits for a full year's production, or more than 80 Twin-Bonanzas at $44,950 each, expects to deliver 100 between "now and the end of 1952 barring all-out war." CAA type certification board had approved Model 50 but ATC itself had not arrived at factory at press time. Power plants are 260-hp. Lycomings, for which Beech has perfected constant-speed propellers which feather in only four seconds or less.

—(Beech Photo by Hans Groenhoff.)

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager; *West Coast Representatives*, TED SCHELL and STAN BROWN, 1200 Rives-Strong Bldg., Tel. Vandike 8921, Los Angeles.

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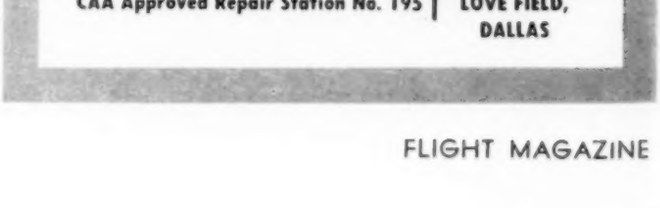
This is recommended reading for fixed base operators, pilots, and purchasing agents bothered with:

SINCE the first impact of shortages and subsequent initiation of the government's "D.O." system of priorities, Southwest Airmotive Company has been in close and constant touch with NPA and CAA officials concerned with this system as it applies to civil aviation. Representatives of Southwest Airmotive have visited CAA offices in Washington, and have conferred frequently with both NPA and CAA in the Dallas area. Spokesmen for these two government agencies recently were invited to the SAC plant at Love Field to talk, not only with our own people, but with operators and pilots throughout this vicinity.

In addition, executives of Southwest Airmotive have completed a wide tour of the east to discuss the supply situation with leading manufacturers whom we represent. We are in daily contact with them, by telephone, telegraph, and letter.

These efforts are part of an aggressive program by Southwest Airmotive Company to assure an uninterrupted flow of materials to you, our customers, consistent with policy handed down from our nation's capital. Whether for use on airplanes, engines, or components in our own shops, or for outside sale to fixed base operators, airlines or aircraft owners, parts can be had at Southwest Airmotive if it is at all possible to procure them legitimately.

Based on our studies and experience, we will do our best to keep you advised of procedures related to the "D.O." system and applying to your placement of orders with this company. Your interests in this matter are very much our interests. Inquiries are welcomed.



Just among ourselves

EDITORIALS

THE NEW GUARD

THE elevation of former Civil Aeronautics Board Chairman Del Rentzel to Under-Secretary of Commerce, the transfer of CAA Administrator Don Nyrop to the CAB chairmanship, the elevation of Charles F. Horne from an airways post to the office of Administrator and the filling of two vacancies on the CAB with Chan Gurney and Joe Adams will, we desperately hope, bring a measure of stability to our Federal civil aviation structure for a while at least. The incessant change of top level personnel during recent years within the Department of Commerce, the CAA and CAB has created an unhealthy, churning wake replete with vacillating policies, indecision on vitally important civil aviation matters and a dangerously low morale of the various staffs and government employes who, in the final analysis, are more important than ephemeral here-today-and-gone-tomorrow top level officials.

Without weighing the merits and demerits of the presidential appointments to all these ranking posts in the Federal aviation structure, there is at least one comforting thing about all the individuals involved. The office holders want to be where they are or they would not have politicked for the jobs. Fortunately there are no Kansas City precinct bosses or Brooklyn junk dealers among them. All of the appointees have had a modicum of aviation experience and at least one of them is a veteran pilot—a fair batting average for aviation appointees in the Truman administration.

Another point worthy of mention is the well-known fact that the Rentzel-Nyrop-Horne combination is a team which evolved quite naturally from Rentzel's first government assignment as CAA Administrator two years ago. Horne, who came out of the Navy as an expert communications man, and who has been directing the Federal airways system modernization program under Rentzel's supervision, is the weakest link in the combination. However, Rentzel supporters believe that Horne can be fashioned into an Administrator ultimately familiar with all the many complex facets of civil aviation outside the narrow field of Federal airways and communications.

Civil airmen will not soon forget how Horne cashiered the airways beacons and intermediate landing fields completely on the "QT" last year without any consultation or discussion with interested industry groups. This one action did more to undermine the confidence of civil aviation in the present triumvirate than any other one development on the ever-changing stage of CAA top policy. Less severe critics of Horne on this particular point of high-handed action in the decimation of certain airways facilities excused him on the basis of his pure military and non-pilotage background. We submit for the record a military background does not qualify a man, no matter how personable or well-meaning, to be the CAA Administrator and is no excuse at all for past errors or for those that might stem from the same incapacities in the days ahead.

If the newly-formed Rentzel-Nyrop-Horne triumvirate is to succeed, there must be an immediate shift from eager-beaver, trying-to-please-everybody and haphazard policy-making in Washington. The Civil Aeronautics Board and the Civil Aeronautics Administration must settle down to their respective jobs of public servants as outlined in the Civil Aeronautics Act of 1938 as amended. If they are to regain the confidence of the people they presumably serve, let's have an end to disruptive turnovers in personnel and the pursuit of political expediency at the expense of intelligent aviation development. Above all, let the "new guard" wake up and realize there is still a lot of talent, experience and ability which money or politics can't buy in the "old guard," and that they are desperately needed at this time to get our aviation ship of state back on a compass course so that all of us will know where we are going.

We fear that topside Washington civil aviation people have created a terrible gap between aviation administration and the basic consumer of civil aviation products and services—the individual, firm or corporation that spends money in some form of aircraft utilization, whether it be the busy executive or housewife who buys an airline ticket or the farmer who seeks an end to the destruction of his cotton crop by the boll weevil. An unfortunate haughtiness, far removed from the hard realism of grass roots aircraft utilization, seems to pervade the administrative halls of official Washington. It borders on the comical when you look at it in its true perspective, realizing full well that civil aviation in these United States still touches a very small percentage of all our people.

If the discouraging hiatus between official Washington and the user of civil aviation is to be bridged by the new leadership, the best place to start is in official Washington by rebuilding the confidence of civil aviation in their administration. The first step might well be the solution of the present backlog of urgent matters instead of flitting about the country making canned speeches, a fruitless pastime for which the aviation industry is as responsible as its "new guard" leaders in Washington. ★ ★ ★

FORTY YEARS OF NAVAL AVIATION

BACK in 1908 two naval officers stood on the sidelines and watched Wilbur and Orville Wright make the first official demonstration of their kite-like biplane to

(Continued on page 41)

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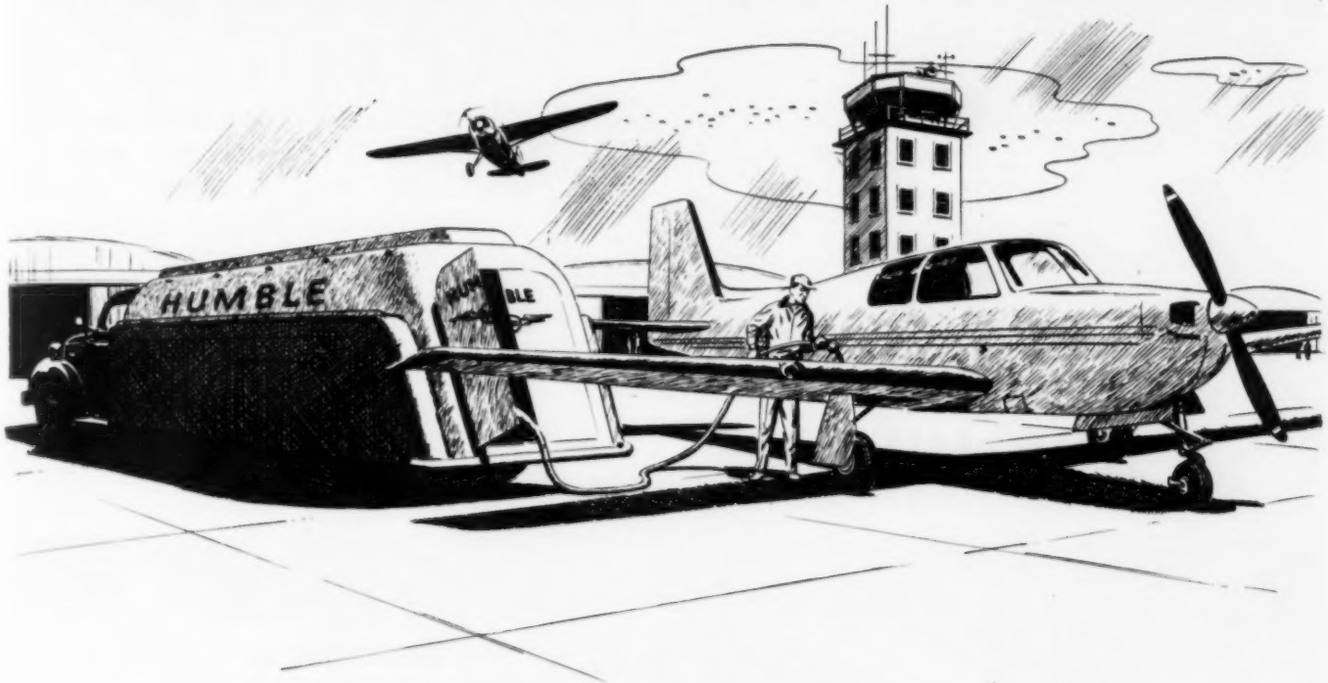

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The sturdy and efficient Convair-Liner airframe has demonstrated complete adaptability to the installation of gas-turbine power plants. America's first turboprop transport, the Allison Convair-Turboliner, already has accomplished a series of successful test flights.

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TEMCO's Five-Year Growth Outstanding in Aircraft Industry

Founded in Dallas six years ago by executives of the Texas Division of North American Aviation, Texas Engineering and Manufacturing Company's growth is the direct result of the ability and experience of its founders and the organization they have built around them.

Starting at the end of the war with a nucleous of highly skilled aircraft technicians and one of the most modern facilities in the aircraft industry including a 3,000-ton hydro press—one of the largest in the Southwest — and three different types of stretch-forming presses, TEMCO has constantly expanded its organization and equipment to meet growing demands for its services. Recently, it entered into a facilities contract with the Navy Department for the supply of a full complement of equipment adequate for the manufacture of military aircraft which will make it possible to increase production to the full capacity of the building area, and which within the next few months, will make TEMCO one of the top aircraft manufacturing plants in the country.

TEMCO's early projects included the manufacture of the Fairchild F-24, the Swift personal plane, and more recently, a trainer of its own design and manufacture, the TEMCO T-35 Buckaroo, Y-models of which were delivered to the U.S.A.F. in 1950.

One of TEMCO's first major jobs was the manufacture of large sub-assemblies for the Fairchild C-82 Packet. Currently TEMCO is working on major assemblies for Lockheed and Boeing plus the modification of an undisclosed number of F-51 Mustang Fighters and C-54 Flying Hospitals.

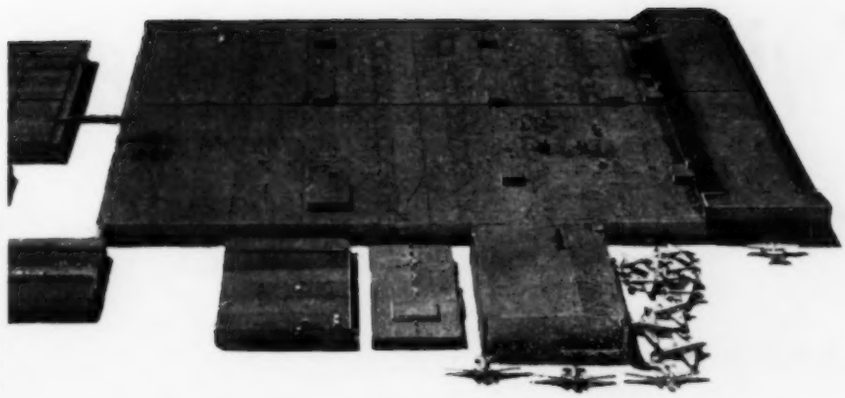
Now employing upwards of 4,000 people and constantly increasing, TEMCO has one of the highest payrolls in the Dallas area.

Production Ingenuity Highlights TEMCO's Manufacturing Methods

Selected by U.S.A.F. as one of the major overhaul facilities for planes on the Berlin Air Lift, TEMCO for the first time in the history of the aircraft industry set up overhaul work on a production line basis. The ability to design tools and manufacture thousands of scarce spare parts plus a production line ingenuity for developing new techniques and methods contributed to TEMCO's reducing the overhaul time on a C-54 by 42 per cent. This resulted in the saving of thousands of hours of time and hundreds of thousands of dollars.

Complete Accessory Shops a TEMCO Feature

TEMCO's accessory shops are specially equipped and designed for testing and overhaul of propellers, radio and radar equipment, instruments and hydraulic assemblies for military and transport aircraft. These shops are completely air-conditioned, with the radio and radar shop shielded and dust-free.



Aerial view of TEMCO's outstanding facilities — a million and a quarter square feet, completely air-conditioned. The outdoor ramp is adjacent to Hensley Field, Dallas, Texas.

TEMCO

ENGINEERS AND MANUFACTURERS FOR THE AIRCRAFT INDUSTRY

Starting in 1945 with an idea and a wealth of experience, some determined people, former executives of the Texas Division of North American Aviation, founded Texas Engineering and Manufacturing Company, Inc.

Known as TEMCO in the Aircraft Industry it has in five short years grown to a place among the leaders in the engineering and manufacture of aircraft. Production ingenuity and manufacturing facilities have resulted in TEMCO being selected to build, in increasing quantities, major assemblies and parts for Boeing Airplane Company, Lockheed Aircraft Corporation and other manufacturers.

TEMCO
TEXAS ENGINEERING AND MANUFACTURING CO., INC.
DALLAS, TEXAS

Texas Engineering and Manufacturing Co., Inc.

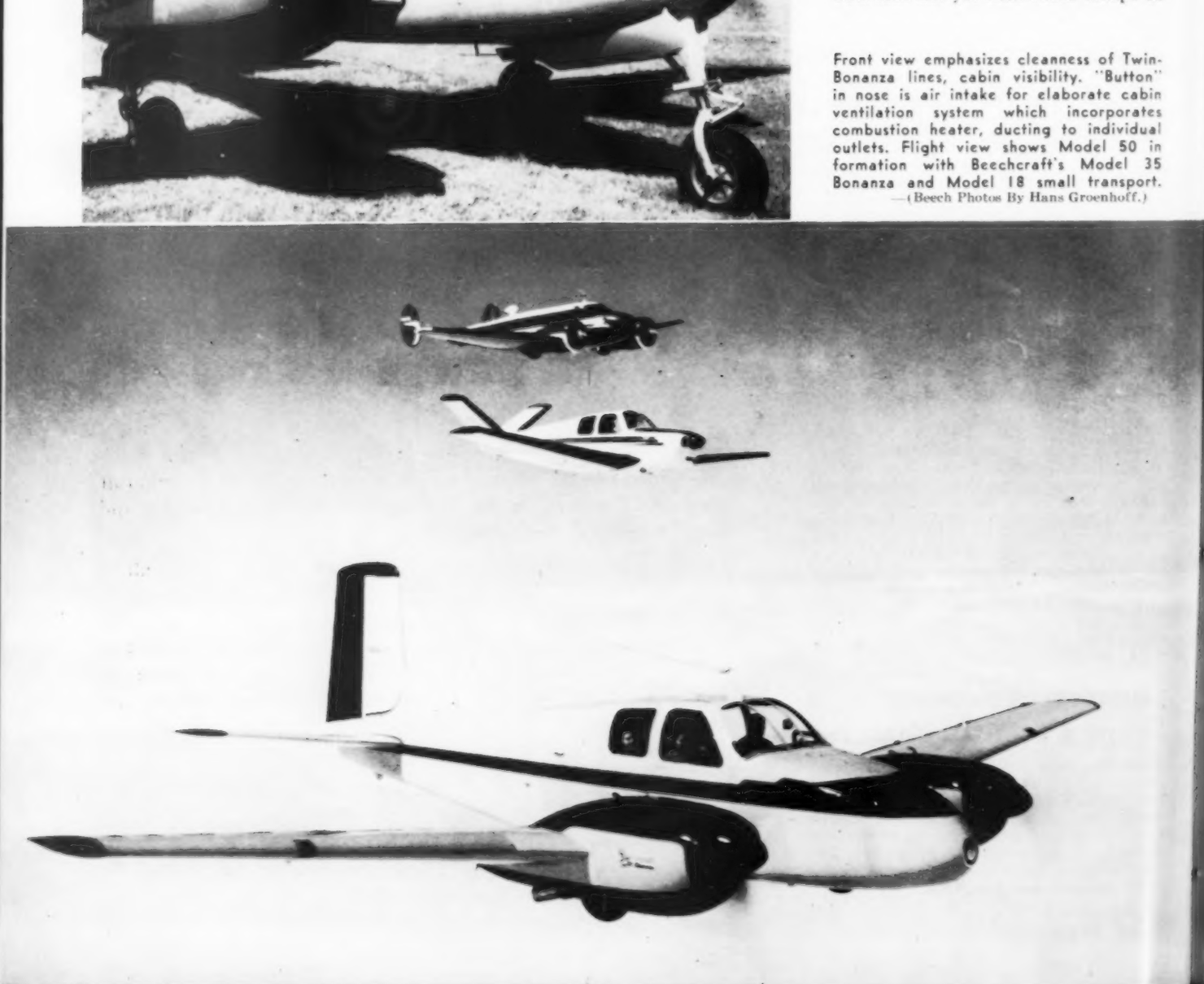
DALLAS, TEXAS

Twin-Bonanza Close-up

Beechcraft's light twin emphasizes attention to detail in many interesting features

LATEST details of the Model 50 Twin-Bonanza released by Beech Aircraft Corporation show the high-performance 5,500-lb. twin to be one of the most completely and elaborately finished private-owner airplanes ever marketed as a new design. It incorporates attention to functional detail, operating efficiency and comfort seldom achieved in a new model until well along in production. None has been delivered.

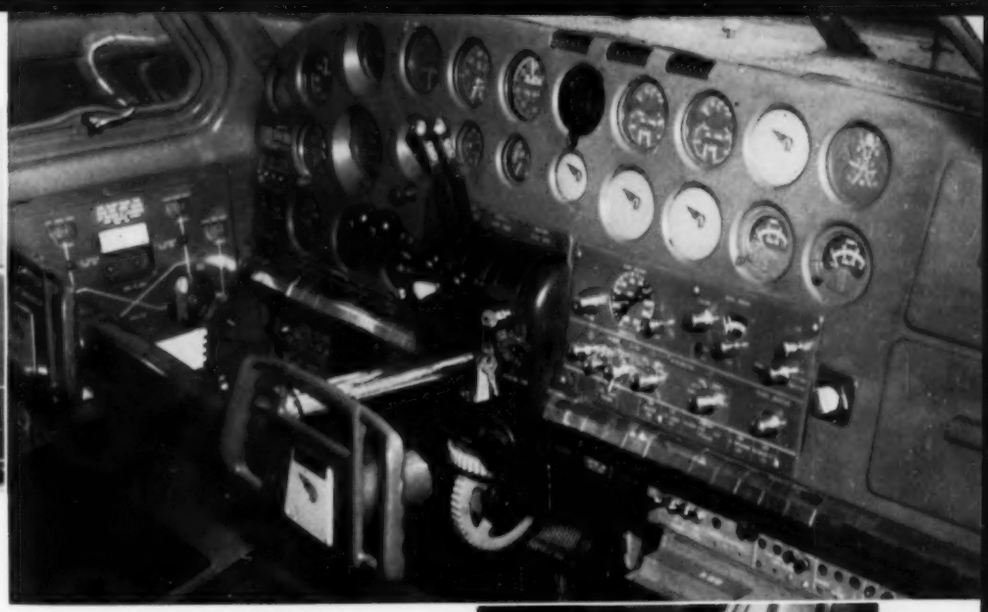
Also without precedent is Model 50's immediate acceptance as reflected by advance sales. Almost 100 airplanes —one full year's scheduled production —have been ordered by owners depositing $5,000 with each order. Only a few of these buyers have even seen the Twin-Bonanza, for no demonstration tour has yet been made except to



Front view emphasizes cleanness of Twin-Bonanza lines, cabin visibility. "Button" in nose is air intake for elaborate cabin ventilation system which incorporates combustion heater, ducting to individual outlets. Flight view shows Model 50 in formation with Beechcraft's Model 35 Bonanza and Model 18 small transport. —(Beech Photos By Hans Groenhoff.)

Control console has propeller, throttle and mixture controls side by side. On console also are elevator, rudder and aileron trim tab controls.

—(All Pictures Beech Photos By Hans Groenhoff.)



Plenty of space for all possible instrumentation is provided in Twin-Bonanza panel. Starter buttons and magneto toggle switches are located together at extreme left. Note special Lear radio control panel to right of console, two large glove compartments. Co-pilot sits in center of 3-place front seat. Fuel control system is on wall at pilot's left in plain view, incorporates selectors in schematic diagram of fuel system. Recessed switches are for main tank submerged electric fuel booster pumps.

military bases. Incidentally, military orders are expected in mid-summer when new fiscal funds become available.

Existing commercial delivery schedules are being accelerated and call for 100 Twin-Bonanzas to be produced "between now and the end of 1952, providing the existing circumstances will permit such construction," says Beech. If all-out war develops, production might be commandeered by the military. Beech says the CAA type certification board has approved the Twin-Bonanza preparatory to delivering its approved type certificate. Over 500 hrs. have been logged on the prototype. No. 2 airplane is due to begin flying early in May. Behind it, four more Twin-Bonanzas are nearing completion—the vanguard of 90-odd additional airplanes in the initial production order. First delivery dates were not announced, may be late this year.

The pictures on these pages and page 30 illustrate details of the Twin-Bonanza now revealed for the first time. Detailed performance and specifications will be published soon in these columns.

Model 50's Lycoming engines, model GO435-C2, are rated at 260 hp. each at 3,400 rpm. for take-off. Maximum cruise power of 240 is developed at 3,000 rpm. Recommended cruise power is 156 hp. (65 per cent) for optimum performance. This power, says Beech, "will give a true air speed of 175 mph. at sea level increasing to 190 mph.

(Continued on page 30.)

Right front seat folds to provide access to rear seat. Large rear cargo compartment (below) has 26.5-by-26.75-in. door, large enough to load an oil drum. Inside capacity of compartment is 41 cu. ft. and 260 lbs. It is accessible in flight.

Nose baggage compartment has 21.5-by-19.75-in. door, 14-cu. ft. inside volume and 300-lb. allowable load. Door safety switch prevents starting right engine unless door is securely closed.

By Maj. Gen. Hugh J. Knerr, USAF Ret.

Does the Army Require Its Own Aviation?

IT'S a fair question. One that should raise no blood pressures in the Pentagon.

The Navy has its own aviation.

The Marine Corps has its own.

Why not the Army?

I doubt that any sensible person will disagree with Winston Churchill's statement, "Air mastery today is the supreme expression of military power." (Note the word "today.")

It took two wars to convince the most stubborn traditionalist that warfare can not remain static. New weapons must appear. The airplane was one of these. It in turn required the development of an organization able to devote full efforts to its exploitation. The parent organization had its hands full of ground weapons and could not pick up another. As a consequence the original sponsor, the Signal Corps of the Army, passed this new one on successively to the Air Service of the Army, then the Air Corps of the Army, and more recently to the U. S. Air Force.

In this process, shadow organizations have developed in the Navy as Naval Aviation and as Marine Corps Aviation. Even the Army now has the beginnings of another ugly duckling. The latter has caused shudders of distaste in some quarters.

I trust the Air Force will not forget its recent struggles for independence. *It would appear to be in their interest to encourage and assist the Army in the creation of an organization capable of taking up some of the air burden.* Scarcely a month goes by that this burden does not materially increase and become more complicated. Why not let the Army help where it can?

Many make the mistake of thinking a war is divided into neat packages labeled "Air War," "Ground War," "Naval War." *There is actually only one war, with one responsible commander in any given area.* He has at his disposal air, ground and naval forces. Likewise in a battle area, there is only one battle going on. Some of it is in the air, some on the ground, and some at sea. Its conduct is very complex. Sometimes it is about as orderly as a mass dog fight.

Nor is the air conflict divided into strategic and tactical packages. The same airplanes and the same units sometimes fight a tactical and a strategic mission simultaneously. Sometimes they fight a tactical mission and never see a soldier. Sometimes they execute a strategic mission "under the guns."

By whatever label known, air power is in the nature of the first assault and the last reserve. It must be employed to strike decisive blows, never mere harassments. To be certain of this it is obvious that this power must be held in leash by an authority far enough removed from local action to feel the pulse of the whole war and yet close enough to respond to urgent local need.

From the point of view of the ground commander in a battle area, it might be argued he would be better off with a flock of aircraft at his beck and call. Better take a second look at that. Remember the battleline is not going full blast at all times. There are hot spots here, quiet spots there, interdiction urgent yonder, close support "or else" over the hill, etc. To have the tactical aviation spread all over the map in small units would be disastrous. This was amply demonstrated and abandoned in the early stages of the last war. (That is, assuming the Korean fracas is not a war.)

It is not valid argument that Marine aviation is part and parcel of the ground combat organization. The function of their air component is close support of ground units. Interdiction and other distant missions are not their pidgin. When engaged in such it is as part of an Air Force or Navy operation.

Non-Combat Aviation Neglected by USAF

FROM the foregoing it would appear to be the wiser course for the Army to steer clear of the responsibilities inherent in combat employment. The complications and duplications involved in education, training, design, operation and maintenance of aircraft and men, are so staggering as to be impracticable of accomplishment.

Where, then, does the Army get this urge to create its own aviation? *Obviously because the Air Force has not been able to satisfy the requirement for non-combat aviation useable in the combat zone.* The Air Force does not dispute this. It maintains that its primary mission requires all the appropriation it has been able to wangle out of Congress. It simply can not afford to buy non-combat equipment for the Army.

As a consequence the Army has been permitted to go ahead and develop a small corps of "Army Aviators" for the purpose of flying the "puddle-jumpers" bought off the shelf for artillery and liaison purposes. That was sensible. That was progress.

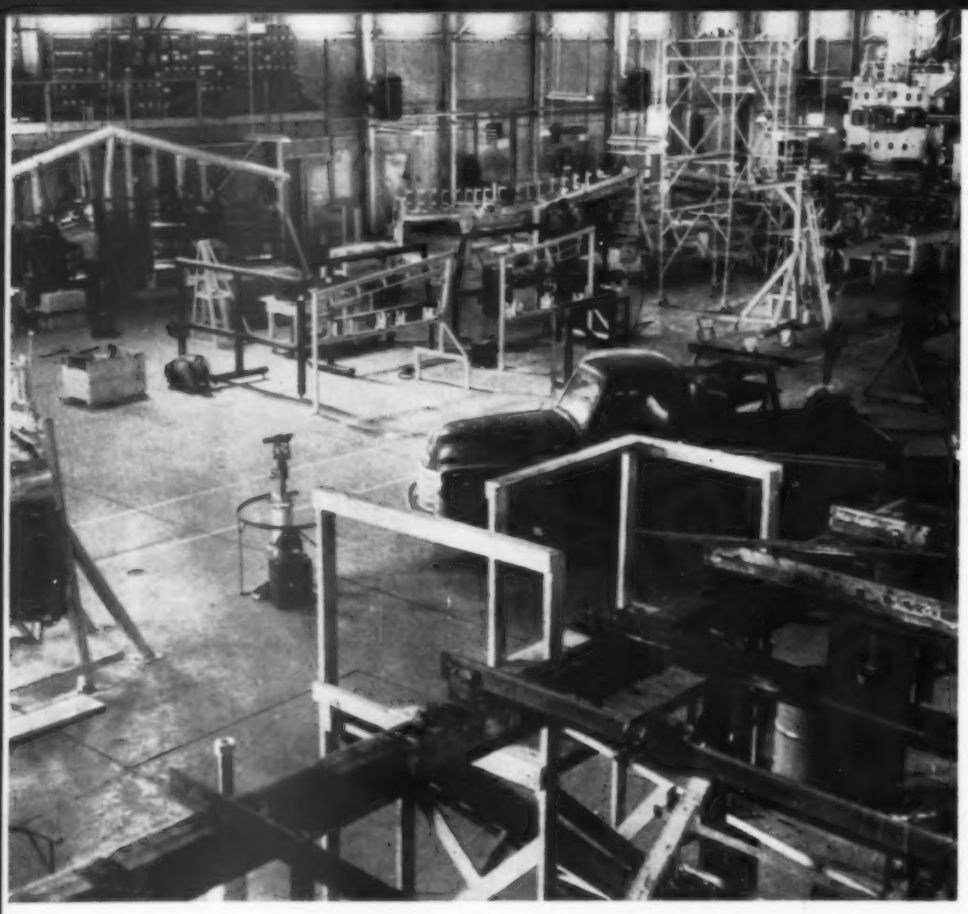
It is no secret the Army is less than satisfied with the transport equipment currently available to them for troop carrier purposes. They feel that if their objective of making the Army as air transportable as possible is to be attained, they must set up the specifications. They have no objection to the Air Force acting as their purchasing agent.

What gripes the Army is that *present transport equipment is bought with their money but to Air Force specifications in which they have little more than a theoretical voice.* They maintain that since it is their men that are jumping out of the airplane, their wounded being evacuated, their beans, bullets and bacon being distributed, it should be their airplane from start to finish.

The Air Force counters with the argument that the Army surely does not want to set up supply depots, maintenance shops, crews, pilots, etc. The Army gets the best of that with the bland reply, "Oh no. You do that for us with that gimick of cross-service you had put into the unification deal." That also makes a lot of sense.

Looks like a good idea to let the Army develop its own Air Service again. After all, it takes more than a truck to replace the old Army mule and escort wagon. ★ ★ ★

Air Force provides pilot training for ground forces and procures its aircraft. Photo shows take-offs by ground force student airmen at Waco Air Force Base, Texas. Left to right, planes are Aeronca, Temco Buckaroo, Convair L-5, and Beechcraft Mentor. AGF liaison aviation is a good start and represents progress, but ground forces would like to have a voice in spending their funds to obtain more non-combat aircraft such as small, medium and large transports.
—(FLIGHT MAGAZINE Photo.)



General Aero Commander production view shows assembly jig for center wing section in left background. Just to right and in front of it are smaller fixtures for elevator, rudder and flaps, while behind them are outer wing panels in assembly and center wing spar jigs. At extreme right is metal forming department with its huge press (see photos below).
—(FLIGHT MAGAZINE Photo by Tom W. Collins.)

Aero Commander in Production

Interesting progress is being made at a new commercial aircraft factory in Oklahoma

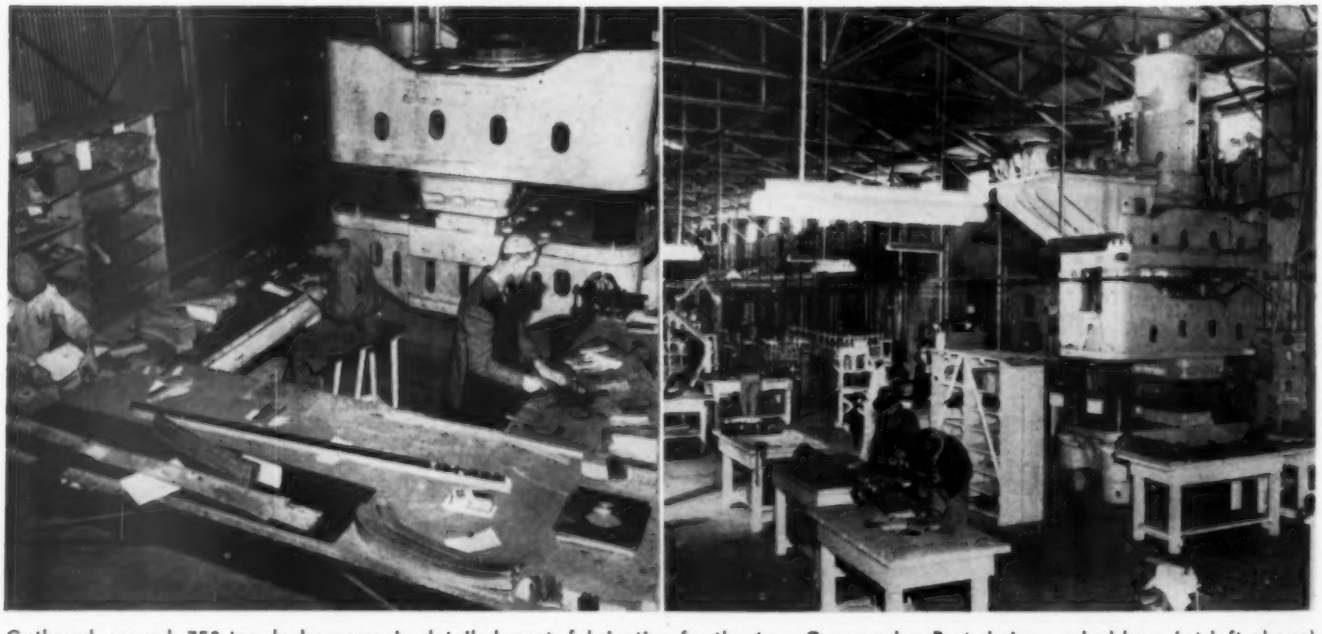
By TOM ASHLEY

THE first small twin-engine airplane to be commercially produced and marketed by a U. S. manufacturer in a decade is well along in production at the new Aero Design & Engineering Company factory in Oklahoma City. It is the 5-6-place Aero Commander, powered by two Lycoming GO-435-C2 engines, rated at 260 hp. each for take-off and 240 hp. each for continuous operation, and equipped with a new metal-blade, quick-feathering constant-speed Hartzell propeller.

We visited the new plant in mid-April, finding it much busier than on our earlier visit two months ago. Two daily shifts were being worked, with the staff reaching more than 200 by mid-June, after which the working force will continue growing.

First production order is for 20 airplanes. Aero Design & Engineering Co. will start a second order of 20 additional airplanes through the line before the first order is completed. In fact, materials for the second order were beginning to arrive while we were there. All told, forty Aero Commanders are scheduled to be produced prior to Dec. 31, 1951.

The first Commander will roll off



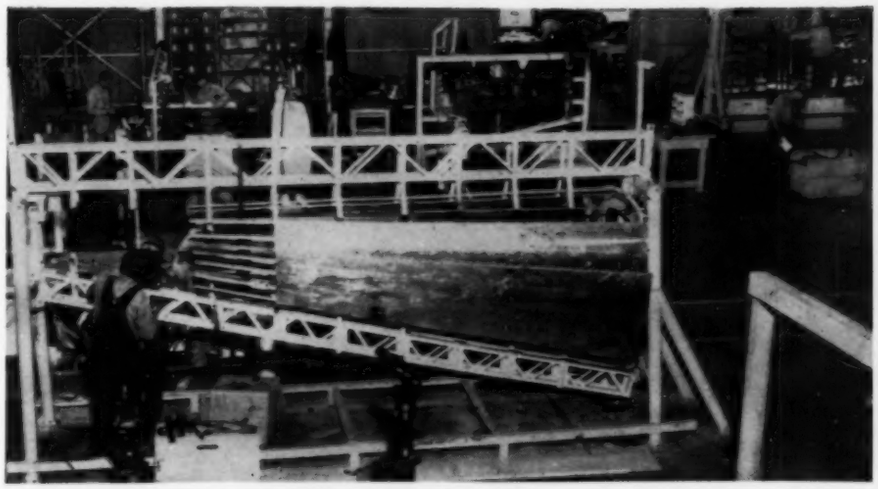
Gathered around 750-ton hydro-press is detailed part fabrication for the Aero Commander. Parts being worked here (at left above) are fuselage frames, seat, control system brackets, elevator ribs, horizontal stabilizer parts and others. On opposite side of press workmen are busy completing small parts. In background are center wing spar assembly jigs and other benches for wing assembly parts.
—(FLIGHT MAGAZINE Photos by Tom W. Collins.)

the end of the assembly line on or about June 1. At that time, 4 more Commanders will have been advanced to near completion on the line immediately behind it, with 6 or more airplanes per month scheduled for completion thereafter.

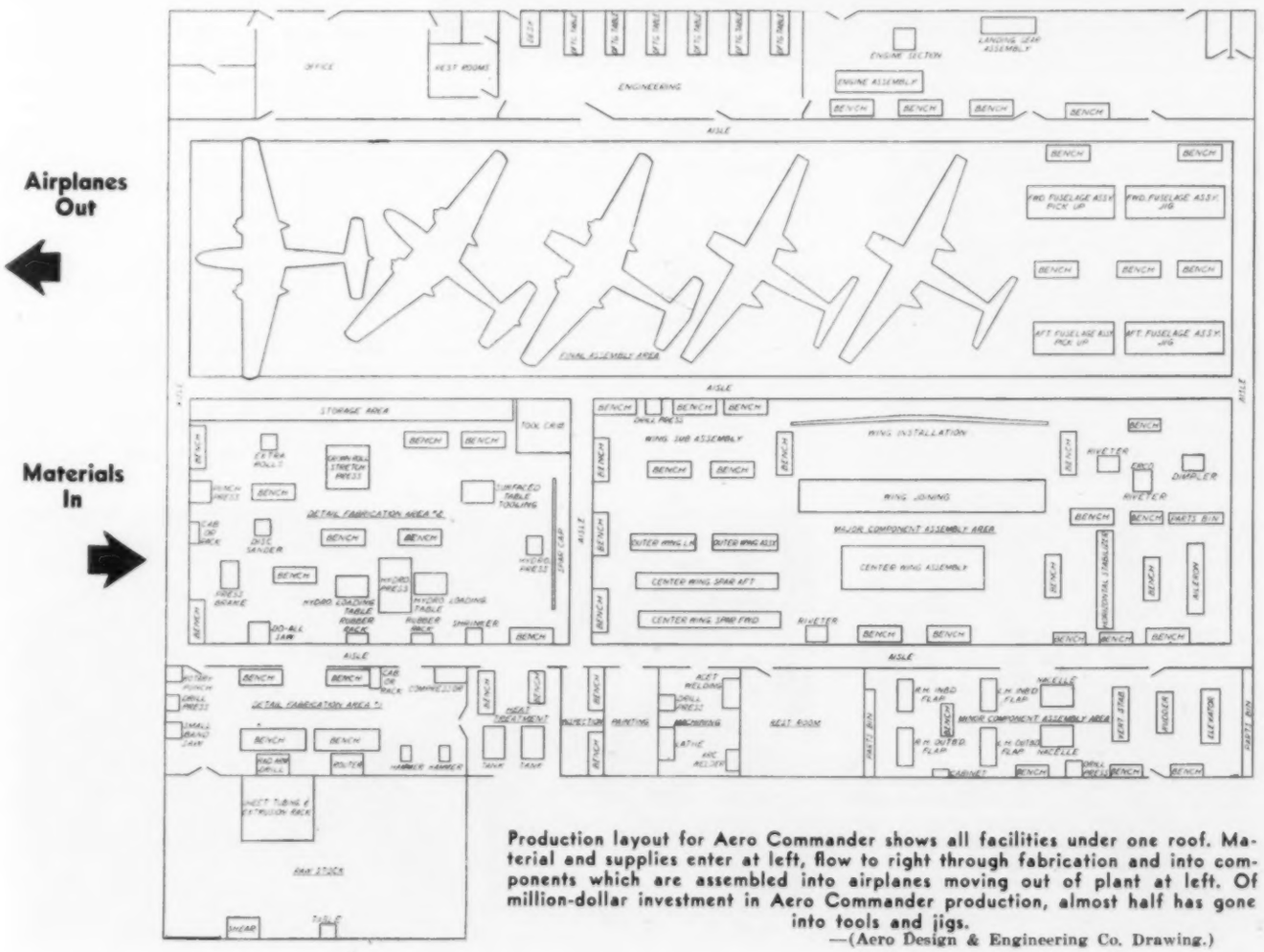
The No. 1 airplane will not be delivered until September 1, when others will be ready for the first formal deliveries. Orders for 20 airplanes have been accepted, each with $5,000 deposit. As a protection to buyers, all deposits are placed in escrow. These orders were on file before the company completed its sales and service network of 10 authorized distributors covering the nation. Orders for the additional 20 airplanes scheduled for 1951 production are expected to follow initial sales work by the distributor organization, which is being established by Carl Wootten, Aero Design sales manager. Deposits now being received and which are placed in escrow guarantee delivery at the announced price of $45,000, fully equipped.

The speed at which production of the Commander is accelerating reflects the thoroughness of almost seven years of developmental work behind the airplane. Original engineering and design work began in late 1944. A group of aircraft engineers and production men, most of them employed at Douglas Aircraft Co. in California, joined together in a spare-time project to organize the original Aero Design & Engineering Corporation, to develop and manufacture a modern, light, all-metal, twin-engine executive-type airplane.

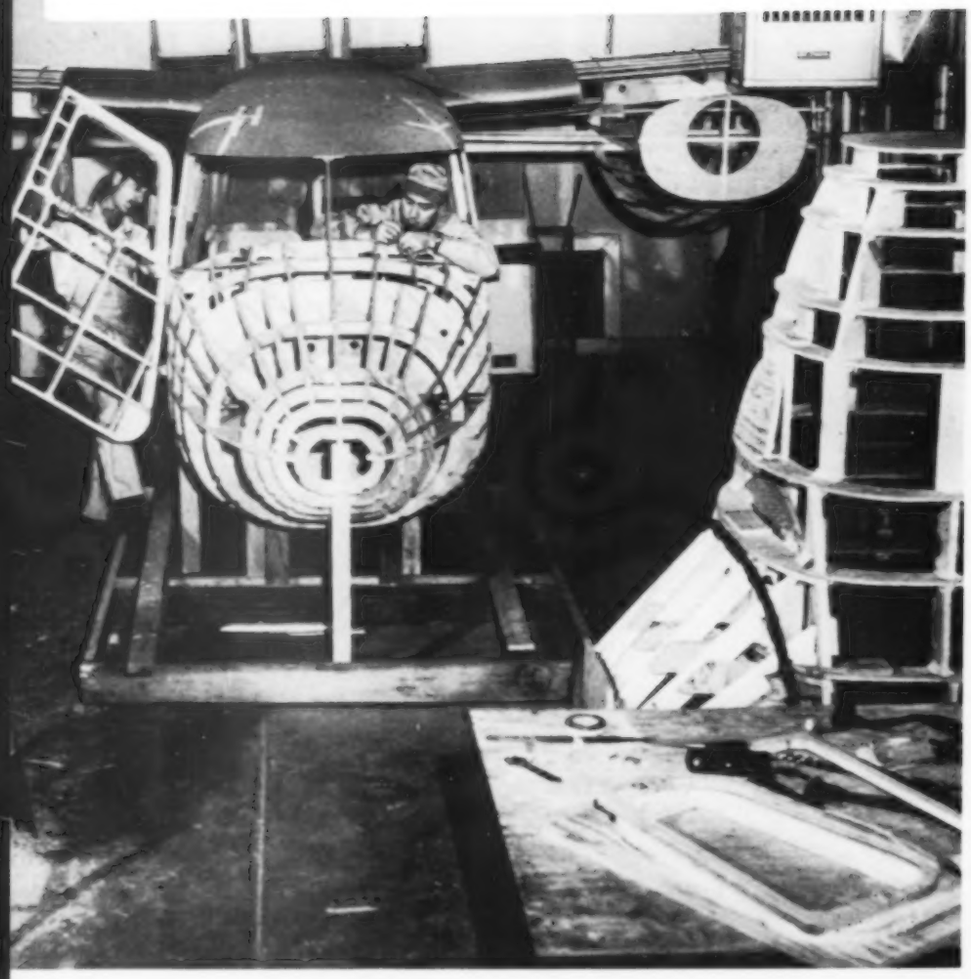
By mid-1945 the little group completed preliminary design work and the final design of the Aero Commander was finished by December, 1945. This was a drawn-out process, the reason being that the engineers in-



Aft fuselage is assembled in this jig. Sheet skin is riveted on automatic machine to Z-section stringers, forming panels. These are then fitted and fastened by hand riveting to fuselage rings in jig. In background are vertical fin jig, horizontal stabilizer jig and aileron jigs.
—(FLIGHT MAGAZINE Photo by Tom W. Collins.)



Production layout for Aero Commander shows all facilities under one roof. Material and supplies enter at left, flow to right through fabrication and into components which are assembled into airplanes moving out of plant at left. Of million-dollar investment in Aero Commander production, almost half has gone into tools and jigs.
—(Aero Design & Engineering Co. Drawing.)



Wooden mockup was used to determine cabin details and for study of cabin convertibility. When picture was made, double doors on left were being fitted as a cargo conversion. Door in standard model is behind pilot at rear of cabin. Key aircraftsmen in Aero Commander project have 175 years of combined aviation experience, averaging 17 years per man. They formerly were with Douglas Aircraft Co.
—(FLIGHT MAGAZINE Photo by Tom W. Collins.)

volved were working on a strict part-time basis while employed at other regular duties on a full-time basis. The only time they could work on the Commander was after regular hours, since the Aero Commander had no connection whatever with Douglas Aircraft, their employer.

By the Spring of 1946, sufficient engineering had been completed to start a modest tooling program at the Culver City, California, airport. Actual fabrication of parts started in August, 1946, with construction of the experimental prototype getting under way. The little high-wing nose-gear twin became an airplane during 1947 but the slowness of part-time labor delayed its completion until early in 1948. Finally it was taxied onto the runway on April 28, 1949, and made its first test flight.

"That first flight proved we had not worked in vain during all those months since the project began in late 1944," recalls Ted Smith, veteran aircraftsman who has headed up the Commander's development and is now general manager. "We knew we had an airplane that would be a natural for the market if and when financing could be arranged for its production and marketing."

This financing was becoming increasingly difficult to arrange because of aviation's general downtrend from the 1946 boom. But in 1950 Ted and his group of long-laboring associates were moved to Oklahoma City by Rufe Amis, whose heavy contracting firm uses private airplanes in its construction of highways, dams and other big projects, and George T. Pew of Philadelphia, oil operator and well-known sportsman pilot. They reorganized the pioneering little aircraft company as a million-dollar enterprise. With the prototype certificated for airworthiness by the Civil Aeronautics Administration on June 30, 1950, production machinery was ordered and materials purchased to establish production facilities.

Considerable tooling and equipment had been assembled by the original group in California during fabrication of the prototype. This, plus all the thorough and detailed production planning which had gone into the project, was enough to launch the Oklahoma City project with a fast start. All of the machine tools and necessary equipment have now been obtained. At the time of our visit last month the hustling factory had on hand the following:

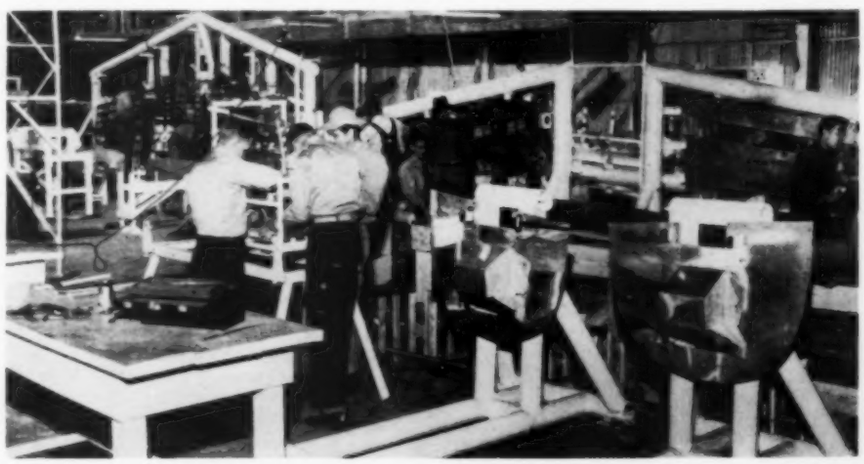
Parts for the first 10 airplanes, with parts for the remaining 10 of the first order being produced in the shop at a growing volume.

Engines for all airplanes committed to delivery from Lycoming, along with all necessary accessories.

Raw materials and stock for more than 20 airplanes, shipments already being received for the second order of 20 airplanes.

Assurance from Hartzell of meeting

(Continued on page 36)



In foreground are engine section build-up assembly jigs with fire-wall installations. Behind are outer wing panels being assembled. Twenty Aero Commanders are being produced in first production order, to be followed by twenty more. Forty are scheduled for production by end of 1951.
—(FLIGHT MAGAZINE Photo by Tom W. Collins.)

Tandem Midget

McCulloch MC-4 grosses 1,800 lbs. with 600-lb. useful load. Side-by-side cockpit is shown at right.
—(McCulloch Motors Corp. Photos.)

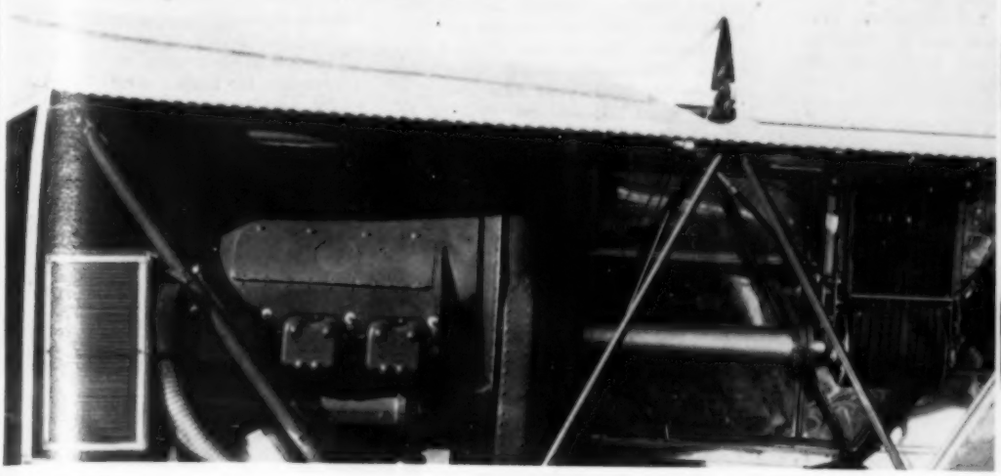
AN interesting new model in the rapidly-expanding development of helicopters is the McCulloch MC-4, a 2-pl., tandem-rotor, 165-hp. craft designed primarily for commercial and private utilization but for which a Navy evaluation contract has been obtained. It is to be produced by McCulloch Motors Corp., of Los Angeles, manufacturers of gasoline engines and equipment including chain saws.

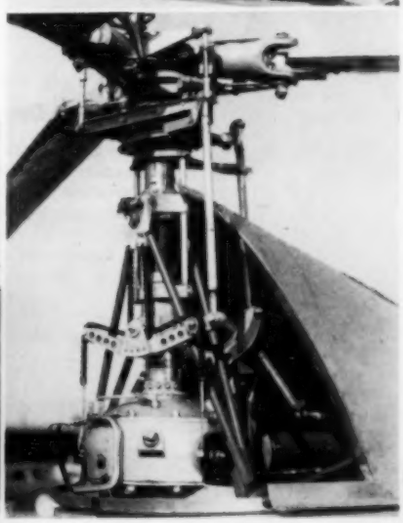
Use of tandem rotors locates baggage or cargo space in the center of the fuselage, eliminates the need for a tail rotor to compensate for torque, simplifies flight control, and, among other things, reduces the diameter of rotors for economy in production.

Its 165-hp. Franklin engine is mounted horizontally, with horizontal output shaft, permitting use of a standard aircraft engine. Describing the power drive, the company says the MC-4 features a simple 10-unit vee-belt drive from engine to main drive shaft. A simple idler pulley engages the drive shaft for flight. From the main shaft to the rotors, the drive consists of automotive-type gearing and bearings, mounted in special alloy housings at each rotor. Intermeshing rotors are 3-bladed, of 22-ft. diameter.

Empty weight is 1,200 lbs., useful load 600 lbs., gross weight 1,800 lbs., over-all length 32 ft. 5 ins., over-all height 9 ft. 1 in. Performance as claimed: Sea level high speed, 100 mph.; sea level operating speed at 75 per cent power, 85 mph.; service ceiling, 16,000 ft.; hovering ceiling, 6,000 ft.; vertical rate of climb at sea level, 675 fpm.; maximum rate of climb, sea level, 1,520 fpm.; time to climb to 10,000 ft., 9 mins.; range at operating speed, 260 mi.; endurance, 4 hrs. 15 mins.; landing speed, power off, 30 mph. ★ ★ ★

Installation of 165-hp. Franklin engine is shown below, with 10-belt drive from engine shaft to main drive shaft. Close-up at right shows forward rotor drive mechanism.





America is discovering a re

Far from being just another gadget, the Lear L-2 autopilot is a device that is radically altering the fundamental nature of flying itself. Here are the impressions of prominent pilots who have tested the L-2. Here are the *facts*—as told by a few of the many owners who now fly with the L-2 autopilot day after day in their own planes . . .

"Greatest Contribution Since Airplane Was Invented"

I operate the L-2 under all conditions, and I wish to say that it is man's best friend in marginal weather. It eliminates everything undesirable in rough air flying and maintains perfect course under all conditions. The L-2 autopilot is one of the world's greatest contributions towards flying and navigation for the average private and executive pilot since the invention of the airplane. It definitely increases the safety of flying due to its all-weather performance. It definitely reduces time between two points on cross-country due to a true course under all conditions. It definitely increases the smoothness of the ride in rough air due to perfect attitude at all times, arriving at your destination free from tiredness and mental strain. I would rather quit flying than do without it. (Cessna 195)

CLARENCE E. MORRIS
National City, California

"Airman's Dream Come True"

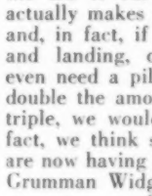
In rough air the L-2 autopilot's performance is uncanny and is probably its greatest advantage next to its aid in instrument flying. A child can learn to operate it immediately. There are only two knobs to turn—one to bank right or left and another to nose up or down. That is all there is to it. The L-2 autopilot is the airmap's dream come true. (Navion)

L. D. ORMSBY
Ormsby Chevrolet Co.
San Antonio, Texas

"Now we can fly 12 hrs. a day"

Before the L-2, when we flew three or four hours on instruments, it was enough, and we would put the airplane away for the day because instrument flying is very tiring when there is no relief pilot. However, now we can fly eight, ten, or twelve hours a day, and the L-2 is our relief pilot. The L-2 actually makes a co-pilot unnecessary, and, in fact, if it weren't for take-off and landing, our airplane wouldn't even need a pilot. If we were offered double the amount of money, or even triple, we would not sell our L-2. In fact, we think so much of it that we are now having an L-2 installed in our Grumman Widgeon. (Bonanza)

CARL H. WAMSER
Everbrite Electric Signs, Inc.
Milwaukee, Wisconsin



"A Safety 'Must'"

No private pilot need ever worry about weather if he has the Lear L-2 autopilot aboard. If he can read his compass, if he has sufficient strength to operate the turning knob, no sudden unexpected instrument condition can ever get him into trouble. The old rule about a 180 degree turn really means something now. In my book your autopilot is a safety "must." It will get you out of danger no matter how suddenly you run into instrument weather. It gives you time to think and to study your maps and check for a radio fix. It takes all the labor and worry out of flying. (Bonanza)

K. F. CLARDY
Lansing, Michigan

"Perfect Instrument Approach"

My wife, who is normally allergic to gadgets in aircraft, put her immediate stamp of approval on the Lear L-2 autopilot after the demonstration of its use in a GCA approach. She was amazed at what a perfect instrument approach could be made in an emergency with the L-2 by a non-instrument pilot. However, what I appreciate most about the L-2 autopilot is the fact that with it the pleasure of flying will still be mine when I would otherwise be quitting because of old age—say in about twenty years from now. But with the Lear autopilot in my plane, I am sure that I will continue to fly as long as I am physically able to drive a car. (Bonanza)

DR. JOHN P. LORDAN, M.D.
Beverly Hills, California

"Takes Out All the Work and Leaves Only the Fun"

The L-2 takes all the work out of flying and leaves only the fun. By holding an exact heading indefinitely it encourages precise dead-reckoning and adds greatly to the pleasure of navigation. It permits in-flight study of maps, airports and radio facility data and frees the human pilot for calculating his flight plans and using his radio. Because it removes the strain from cross-country trips, I would judge that it doubles the efficiency of the owner, his airplane and his other equipment. I consider it the greatest single contribution to private flying in recent years. (Bonanza)

CARLETON PUTNAM
Chairman of the Board
Chicago & Southern Air Lines

"Wonderful Performance"

The L-2 pilot gives a wonderful performance for such a small and simple unit. The freedom it gives the pilot during instrument flights is very important when operating without a co-pilot. We feel that we have made a good investment in safety and convenience. (Twin Beech)

HARRY F. WHITE
Union Cutlery Co., Inc.
Olean, New York

a remarkable *new kind* of flying...

"I No Longer Hesitate to Fly Anywhere..."

The Lear L-2 Pilot can hold a course accurately, indefinitely, such as no pilot can do even if he has a co-pilot to do all the navigating for him! It leaves both hands free to twist dials, throw switches, futz with the carburetor heat, work the radio, study the charts, figure out ETA's with the confusers, etc. As long as my ceilings enroute and at the point of destination are such as to give me time to hunt a landing field in case of an emergency, I no longer hesitate to fly anywhere in my Lear equipped Navion through fronts, crud, crap and what-have-you, except ice and thunderstorms, of course. I do most sincerely believe that the Lear L-2 Pilot, the Lear Omni-Range Receiver, and the Lear ADF are the three greatest contributions to private flying since the Navion itself!

ARTHUR GODFREY, CBS

"Eerie Super-Coordination"

The Lear L-2 autopilot is simply out of this world in what it does for a private type airplane. It will not only fly the airplane, but it will give your favorite airplane stability and riding qualities that you've never dreamed of because you've never seen one flown well enough to produce this almost eerie product of super-coordination. It not only gives a more comfortable ride, but it takes the fatigue out of piloting and you arrive as fresh as your passenger. And if, enroute, you really need to deliver your very best judgment on a weather or navigational problem, it gives you an opportunity to think, for it puts into the airplane a priceless quality: a desire to fly straight.

LEIGHTON COLLINS
Editor, AIR FACTS Magazine

"Definitely Superior to the Drive-in Theatre"

The L-2 autopilot is the greatest invention since one-armed driving was introduced. With television added to the omni, it is definitely superior to the drive-in theatre. (Cessna 195)

ELLIOT W. SPRINGS
President, Springs Cotton Mills
Lancaster, South Carolina

"Better Than an Airline Captain"

The L-2 pilot does a better-than-human job of flying in turbulent air. It is in rough air that the full enjoyment of the Lear L-2 Automatic Pilot can be seen. Long trips are now as comfortable as short ones formerly were. And how that L-2 pilot smooths out the bumpy roads and detours better than an airline captain! I wouldn't be without one now. (Cessna 195)

A. W. FREDERICK
Memphis, Tennessee

"The Missing Link"

It may well be that Bill Lear (AOPA 6975) has contributed one of the most important missing links to the development of private flying. It is quite conceivable that the L-2 right now could very well boost the average utility of a plane owned by a typical AOPA member from, say, an average of 50% to something like 90%. Such an increase in utility could, by itself, put civil aviation in the position of being one of the nation's healthiest, more thriving industries.

MAX KARANT
Editorial Director
Aircraft Owners & Pilots Assn.

"Increased the Airspeed Up to 15 MPH"

Slow flight down to 65 mph can be maintained with the L-2 autopilot so long as the prop turns up about 2000 rpm. The L-2 autopilot has increased the IAS from 10 to 15 mph (depending on altitude) due to the fact that it will hold the ship on the step perfectly, which is something that I am too lazy to do for any length of time. In short, I think the pilot is great and would not be without it. (Navion)

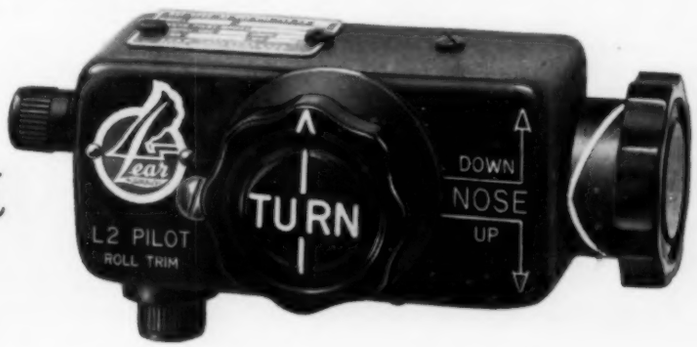
H. R. ELDRIDGE
Austin, Texas

"Will Never Have Another Plane Without It"

It is my opinion that the L-2 autopilot is the most outstanding contribution towards the safety and enjoyment of light plane flying ever made. When visibility is very low and most of your attention must be directed outside the plane the L-2 is invaluable. I also can visualize the great comfort to the inexperienced pilot, who suddenly finds himself in instrument conditions. He turns on the autopilot, and without fear of losing control, can devote his whole attention to getting out of the weather and returning to where he came from or contacting his nearest radio station for help and advice while the L-2 is holding any course or any altitude he desires. Our experience with the L-2 has been so satisfactory that we will never have another plane without having it equipped with an autopilot. It's the best life insurance you can buy. (Bonanza)

GEORGE V. KEITH
Milwaukee Crane & Service Co.
Cudahy, Wisconsin

the LEAR L2 autopilot



NORTHROP F-89 SCORPIONS OF U. S. AIR FORCES are becoming prominent in mobilization activities. Line-up above is for final flight-test before delivery to USAF, with lineman carrying belts of ammo for all-weather night fighters equipped with six 20-mm. nose cannon. Pictured at left on wing trailing edge are Northrop "decelerons" —jaw-like dive brakes for rapid F-89 letdowns from altitudes in the range of 40,000 ft. and for decelerating in combat. Pilots frequently call for landing instructions while flying at 40,000 ft., diving into traffic pattern with dive brakes. In normal flight, decelleron jaws are closed and operate as ailerons.

—(Northrop Photos.)

flight pictorial

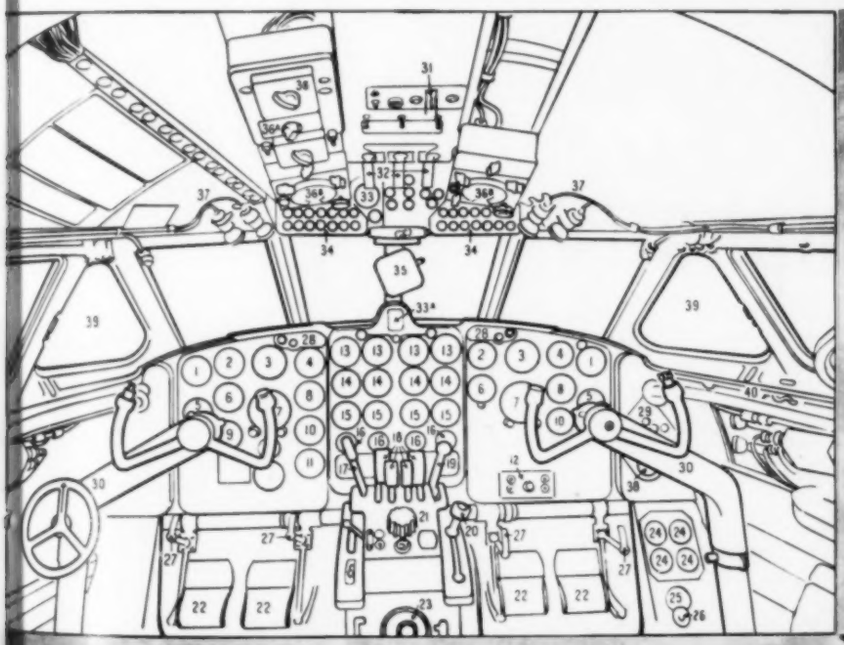
TO ACCELERATE B-36 PRODUCTION, Convair's huge factory at Ft. Worth, Texas, obtains materials and services from 1,610 suppliers in 36 states and the District of Columbia as shown on the map. Forty of them in 11 states are subcontractors, 15 being in Texas, and these in turn have thousands of suppliers. Dollar volume of total B-36 production in 1949 included only 12 per cent for subcontracting which has now been expanded to 33 per cent of total production cost. Employes in B-36 factory now total 28,000 in number.

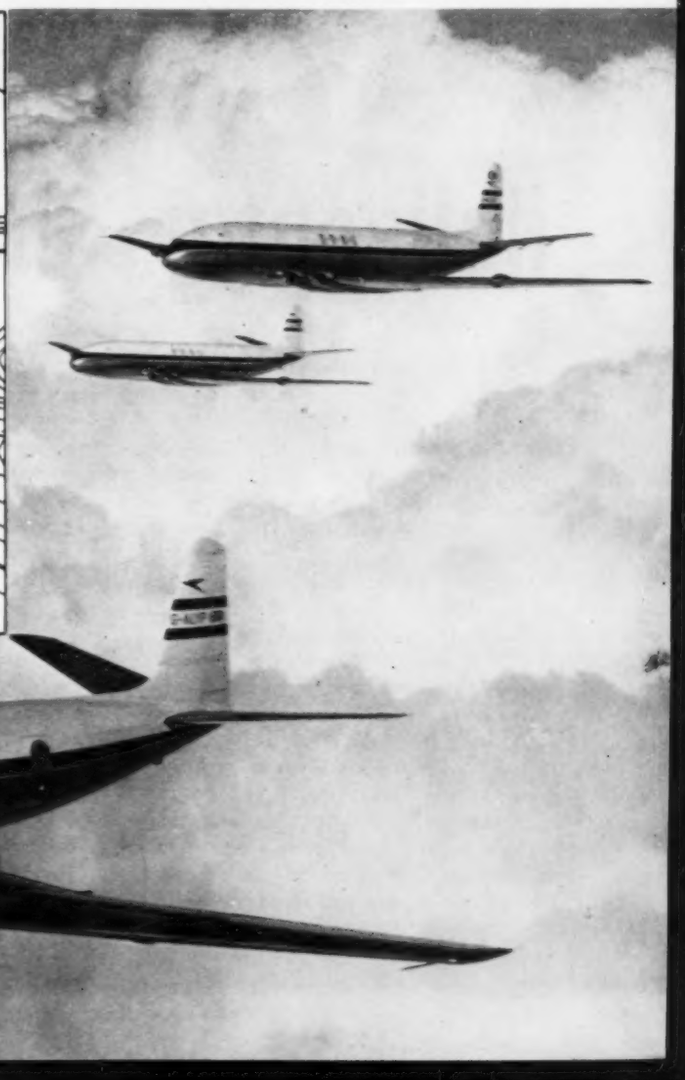
—(Convair Map.)

FIRST OF MANY TRIAL FLIGHTS of America's first turbo-prop transport, the Convair Turboliner, is pictured at left. A modified 40-passenger Convair-liner 240, it is a research plane ordered by General Motors to test gas turbine engines in a transport and is powered by two 2,750-hp. Allison 501 turbo-prop engines equipped with Aeroproducts propellers.
—(Convair Photo.)

flight pictorial

LATEST PORTRAIT OF ENGLAND'S JET AIRLINERS shows three de Havilland Comets in close flight. Eighteen Comets have been ordered and regular service on BOAC is scheduled for late this year or early 1952. Thirty-two-passenger Comets cruise at about 500 mph. Drawing shows Comet cockpit arrangement, numbered for identification as follows: FLIGHT PANEL—(1) instrument landing indicator, (2) air speed indicator, (3) artificial horizon, (4) rate of climb and descent, (5) ADF indicator, (6) altimeter, (7) compass and directional gyro, (8) turn and bank, (9) accelerometer, (10) machmeter, (11) outside air temperature, and (12) compass panel control; ENGINE PANEL—(13) tachometers, (14) jet pipe temperature, (15) oil pressures and temperatures, and (16) rear bearing temperatures; CONTROLS—(17) brake parking lever, (18) throttles, (19) flap selector, (20) air brake operating lever, (21) autopilot control box, (22) toe brake rudder pedals, (23) rudder trim, (24) hydraulic brake pressure gauges, (25-26) oxygen regulator, (27) rudder pedal adjustment, (28) flying control booster warning light, (29) hydraulic system low pressure warning lights, (30) captain's control column and steering nose wheel control; MISCELLANEOUS SERVICES—(31) switch for secondary power control booster pump, (32) power control boosters changeover levers, (33) landing gear warning light, (33a) landing gear mechanical indicator, (34) fire warning light panels, (35) magnetic compass and mirror, (36) ILS control box, (36a) VHF control box, (36b) ADF control box, (37) instrument lights, (38) hydraulic system pressure gauge, (39) direct vision panels, and (40) hot-air pipe for de-misting.
—(de Havilland Photo; British Information Service Drawing.)





A tube of aluminum is the airframe for the Buck Private. Attached to the tube are the rotor, with small pulse-jet engines at each tip; landing gear; fuel tanks; instrument panel; pedals for the one-piece rudder, and pilot seat. In close-up (bottom) below flight scene, pulse-jet's valve assembly is seen. It's the only moving part of engine, is replaced with a screw driver in a few minutes at $5 cost after 50 hrs. of running. In pictures are Corwin Denney, president (top), and Engineer Howard Roberts of American Helicopter Co.
—(American Helicopter Photos.)

Helicopter Simplicity

THE ultimate in simplifying a flying machine appears to have been reached by American Helicopter Company's new little XA-6 "Buck Private" pulse-jet helicopter, which began flight tests last month at Manhattan Beach, California.

Its airframe consists of a single, formed tube of aluminum. At one extremity of this tube is the diminutive landing gear. At the opposite extremity is the simplified rotor. Structurally, that's all there is to it.

Power plants are pulse-jet engines, one at each rotor tip. More economical in fuel consumption than a ram-jet engine, the pulse-jet used is produced by American Helicopter Co., and has but one moving part, which needs no lubrication. This is the valve assembly. The company says the serviceable life of its pulse-jet engine has been proven to be well over 50 hrs., and the maintenance required after this period "consists merely of the replacement of a small valve assembly which can be accomplished in a few minutes at a cost of less than $5."

From a maintenance standpoint, power plants, rotor blades, hub mechanism and landing gear can all be removed and all other normal maintenance conducted with the use of only an ordinary crescent wrench and screw driver.

Low costs are also reflected in production, for the aircraft can be produced "at a fraction of the cost of conventionally-powered helicopters," it is said. One of its primary advantages, however, is said to be its extreme low empty weight combined with comparatively moderate fuel consumption resulting in ability to transport greatly increased payloads over moderate range. Details were not released, but the firm said that, for an endurance of between one and two hours, it has been proven that "much greater payloads can be transported than possible with any other type of helicopter."

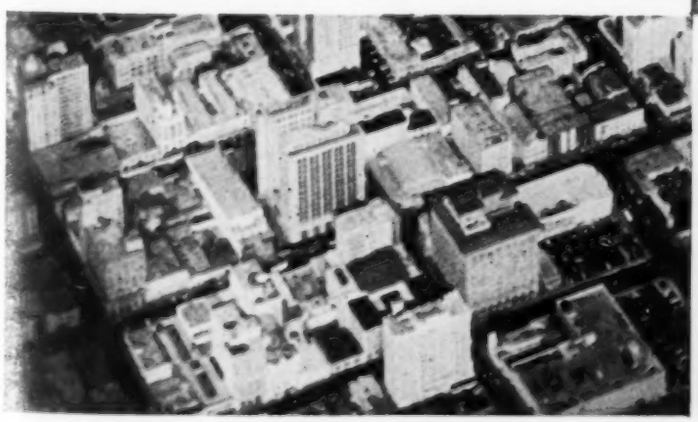
Functional simplicity is reflected in the fact that fuel is supplied to the power plants by the centrifugal pumping action generated by the whirling rotor. No auxiliary equipment is required in the fuselage to sustain engine operation—either fuel pumping or ignition. This gives the helicopter a significant safety advantage by eliminating failure of accessories as a flight hazard.

The XA-6 is the firm's second pulse-jet helicopter model, being slightly smaller and more simplified than its original XA-5 "Top Sergeant," which began flying in 1949. Data from the two experimentals can be followed in developing larger models. ★ ★ ★

Economy!

Talk about enthusiasm, talk to a Piper Pacer owner! He has good reason to rave. He's getting better than 120 miles an hour. He has a comfortable airplane for four people. He has range and climb and a solid ship that takes the jolt out of rough air. Yes, he's getting performance, and he's getting it with *economy*. That's why he's enthusiastic. No other plane owner gets four-place transportation as inexpensively as the Pacer owner. The lower initial cost means less hourly depreciation. The lower horsepower needed by Piper's compact, efficient design means less gas consumption. The new Piper Duraclad finish and service-proven features of Piper planes means lower plane maintenance. It means an overall cost per passenger of less than 2¢ per mile. Yes, the Pacer matches performance and utility with *economy*. A happy combination which makes happy owners.

HIGH OVER MIAMI you see the sensational new Piper Tri-Pacer which costs less than half the price of any other four-passenger plane with a tricycle landing gear. The Tri-Pacer means new flying simplicity and permits easy ground handling in high winds. Interconnected rudder and aileron let you fly with wheel alone or feet alone. A companion model is the regular Piper Pacer with standard gear preferred by many pilots. Either way, you get more for your dollar with a Piper.



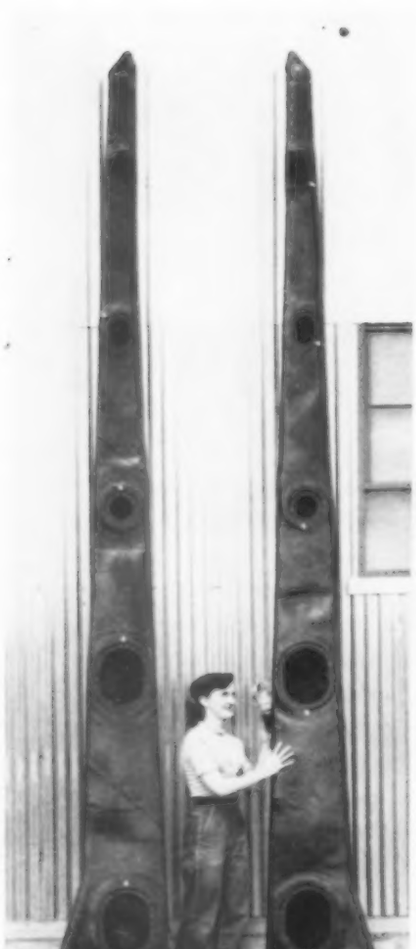
See your nearest Piper dealer for a demonstration flight in the new Pacer and Tri-Pacer. For dealer's name and new color Pacer brochure, write Piper Aircraft Corporation, Lock Haven, Pennsylvania, Dept. F-5.

PIPER

AIRCRAFT CORPORATION

Lock Haven, Pennsylvania

flight pictorial



FUEL TANKS for leading edge of a jet fighter. These are Firestone rubber fabric cells, containing rubber sealant to make them self-sealing when pierced by bullets.
—(Firestone Photo.)

25 YEARS OF PROGRESS is being celebrated by Western Air Lines, recalling memories of 1926. At right (left to right) is WAL's first flying team—Fred Kelly, Jimmy James, Al DeGarmo and Maury Graham. Below is their first ship, a converted Douglas M-2, still maintained. It had 400-hp. Liberty, 115-mph. top speed, 700-mi. range, one passenger seat (some passengers held mail sacks in lap).
—(Western Air Lines Photos.)

LATEST AUTO INDUSTRY PRODUCTION TIE-IN WITH AVIATION is project for Plymouth division of Chrysler Corp. to produce hulls for Grumman Albatross air rescue amphibian.

AVRO CANADAIR CF-100 twin-jet fighter has been ordered in quantity by Canadian government. Shown here with wing tanks, CF-100 may soon fly to England for demonstrations.
—(Avro Photo.)

TAKE THE HIGH ROAD...

While competition takes the low road, the far-sighted business executive of today takes the BEECHCRAFT high road saving valuable time and arriving fresh, ready for business.

The J. D. REED COMPANY of Houston is anxious to show you how a BEECHCRAFT will double your coverage of distant business interests and still give you more time at home.

Important too: The J. D. REED COMPANY offers you the finest in service and maintenance facilities as an extra guarantee of your satisfaction in BEECHCRAFT products.

J. D. REED SERVICES

Beechcraft Sales and Service
Super Aircraft Repair Station
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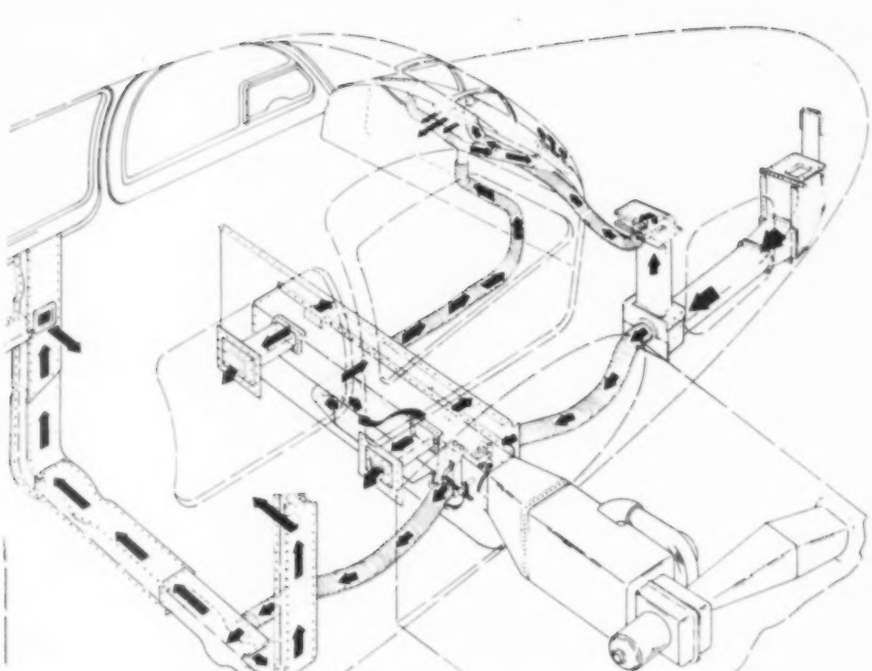


Elaborate cabin air heater and ventilation system of Twin-Bonanza. Outside air from nose scoop passes through combustion heater. At low air speeds, air flow is maintained by an electric blower connected to landing gear switch; when gear is down, blower is on. Heater is not used when system is used for forced air ventilation. Cool cabin air is available at all times by a separate ventilating system. When an optional evaporative cooler is added to the heater system, it becomes an air conditioning system. In extreme cold climates, engines can be preheated by forcing air from cabin heater to engine nacelles.

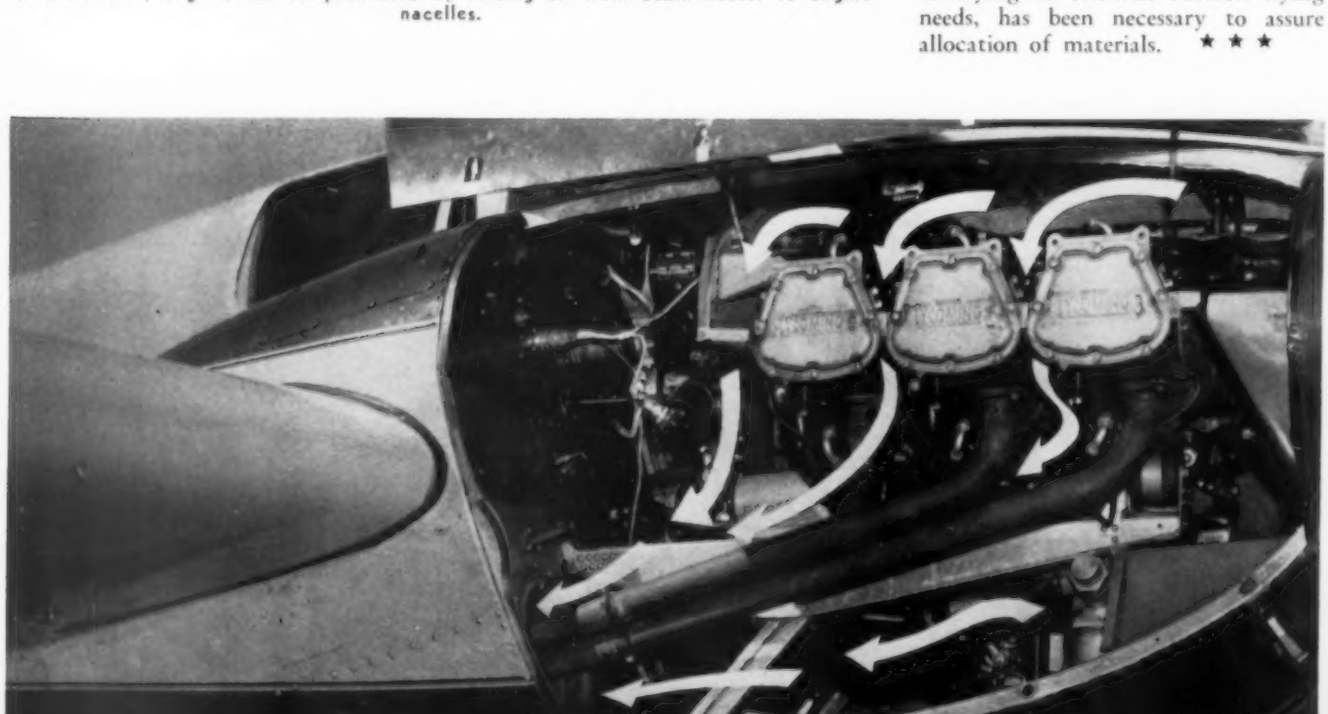
TWIN-BONANZA

(Continued from page 15)

true air speed at 10,000 ft." Fuel consumption at 65 per cent of power is slightly greater than 25 gals. per hr. Maximum range at 65 per cent power and 8,000-ft. altitude is 982 miles, not including take-off and climb. Fuel capacity is 135 gals. in wing tanks.

Beech has perfected a new quick-feathering propeller of its own for the Twin-Bonanza. It feathers in 4 secs. or less. To feather, the propeller pitch control lever is brought full back, beyond a stop provided to prevent accidental feathering, there being no buttons or switches to reach for and pop for feathering. Power for feathering is supplied by governor oil pressure and an electric feathering motor. When re-starting, the electric feathering motor reverses direction and changes the pitch to about 45 degrees, at which the propeller windmills at about 500 rpm., sufficient for starting and hydraulic propeller control.

Price of the Twin-Bonanza currently is $44,950, fully equipped but without radio. Feathering propellers are optional. Advance deposits guarantee this price through 1952. "DO" certification of all advance orders, testifying to essential business flying needs, has been necessary to assure allocation of materials. ★ ★ ★



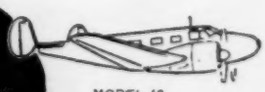
Augmentor tubes eliminate need for conventional cowl flaps and also provide jet-effect thrust augmentation. Arrows show cooling air flow directed into tube. Increased velocity of expanding exhaust gases directed into tube induces air flow through all parts of the engine compartment. Thus engine cooling is not in direct relation to airplane's speed but is dependent on power developed. Power creates a pumping action of the exhaust gases through the tube. This is a Beech engineering development of much significance.

To help America build faster...there's a brilliant new star in the sky...the Beechcraft Twin-Bonanza

Range, high performance and ruggedness make this newest Beechcraft right for business — and right for military service, too. Designed primarily as a super-roomy, five-place executive plane, capable of seating six for medium-range flights, the Twin-Bonanza is a superb "short-cut" for defense-busy executives. For military use, this *one* plane can serve as a personnel transport, twin-engine trainer, photographic, ambulance or cargo plane — with resulting savings in procurement and maintenance.

The Twin-Bonanza has the ruggedness and safety of its noted Beechcraft predecessors. Structural and operational standards are far in excess of government requirements. Your Beechcraft distributor has detailed information on this new Beechcraft. Check with him today, or write Beech Aircraft Corporation, Wichita, Kansas, U.S.A.

- Range at 60% power, 1,005 miles
- Top speed at sea level, 200 mph
- Cruising speed at 10,000 ft., 191 mph
- Rate of climb, 1,650 fpm
- Service ceiling, 20,400 ft.



Beechcraft

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

AIR REPORT

(Continued from page 7)

which now has a $6 million monthly payroll and works 28,000 persons.

DOUGLAS AIRCRAFT COMPANY reports an April 1 backlog of orders totalling almost a billion dollars. First quarter-1951 sales at $39 million were 50 per cent ahead of last year, and net earnings totalled $1.6 million. After a 2-for-1 stock split, a 75-cent dividend was declared. Only 15 per cent of the Douglas backlog is for commercial orders of 91 DC-6B airliners. Military orders are divided 53 per cent for Navy, 46 per cent for USAF and 1 per cent for other agencies.

FIRST TEXAS-ASSEMBLED HELICOPTER has been turned out by Bell Aircraft's new Fort Worth branch plant. Parts were shipped in from Buffalo for assembly. . . . **BILL LEAR'S L-2 AUTOPILOT** for civilian aircraft is being produced at the rate of 100 units monthly, he said while on a recent trip.

PRAISES FOR USAF INSTRUMENT TRAINING IN T-6 aircraft at Selma AFB in Alabama are being sung by instructors for civilian contract schools who are taking the course, which includes instrument take-off, precision flight and landing. One student, who instructed on T-6's for 3,000 hrs. as a civilian in the training of RAF cadets during the last war, says he is learning things he never knew about the T-6. The course is tough, but is being taught by USAF pilots who have organized the finest instrument course ever offered anywhere, this student says. "As different as night from day" is his comparison of the new T-6 technique and that followed during the last war. "It's a process of pitch, power, and bank control, and you stay ahead of the airplane all the time," he described it.

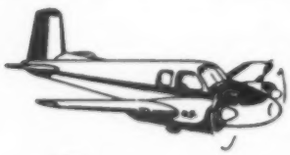
NEW FUSELAGE SHAPE for Republic F-84F accommodates 7,200-lb. thrust Sapphire turbo-jet engine to be manufactured by Curtiss-Wright and General Motors. Republic redesigned nose air intake and increased depth of fuselage by 7 ins. to take the big jet engine. The "F" model Thunderjet made its first flight a year ago with a 5,200-lb. thrust Allison engine; has made over 23 flights with the more powerful Sapphire. Production of "F" is being readied at Republic's Long Island, N. Y., plant and at General Motors' Kansas City factory.

—(Republic Photo.)

THREE MORE DISTRIBUTORS FOR THE AERO COMMANDER have been announced by Carl Wootten, sales manager. They and their territories are Morgan & Waltz of Mexico City, for whom Francisco Waltz turned in three orders with deposits for Aero Commanders purchased by Mexican business men (Mexico); Van's Air Service, St. Cloud, Minnesota, of which B. G. Vandre, long-time aviation leader, is president (Minnesota, Iowa, Wisconsin, N. Dakota and S. Dakota), and Great Lakes Airmotive, Inc., Willow Run Airport, Detroit, of which R. L. Nulty is president (Michigan).

DE HAVILLAND DOVES ARE NOW BEING FLOWN ACROSS NORTH ATLANTIC OCEAN for delivery to Riley Aircraft, Gregg County Airport, Longview, Texas, the U. S. distributor. First one ferried across went to A. E. Hall of Albuquerque, N. M., dealer who has ordered two Doves. Only extra fuel installation was 65-gal. standard baggage compartment tank which most purchasers are specifying anyhow. Route is via Iceland, Greenland, Goose Bay, Montreal and Toronto. Thane Minor, Riley sales manager, says orders for 11 Doves had been taken in less than 4 months of sales work, totalling over $830,000 in value.

ROYAL CANADIAN AIR FORCE'S PURCHASE OF BEECH D-18-S TWINS FOR TRAINERS has



Beechcraft 50

A 5- to 6-place utility transport and air carrier with a baggage capacity of 320 pounds.

ANNOUNCING OUR APPOINTMENT

as Beechcraft Distributor for the great tri-state Ark-La-Tex area embracing portions of S. Arkansas, N. Louisiana and E. Texas for which we were formerly a Beechcraft dealer.

NOW IN OUR 34th YEAR of aviation operations, we're more confident than ever of aviation's future. Dependable performance and service are the keystone of aircraft utilization and Currey Sanders Aircraft's success in aviation is due to our long record of dependability and service.

Beechcraft 18

A 7 to 9 place executive transport and air carrier with a baggage capacity of 320 pounds.

Beechcraft 35

The Bonanza is a 4-place, high-speed business airplane with a baggage capacity of 100 pounds.

AS BEECHCRAFT DISTRIBUTORS, we solicit your business and interest in the finest standards in new and used aircraft, maintenance service and parts, private charter or leased air transportation, and instrument flight training.

CURREY SANDERS
Aircraft Company, Inc.
Beechcraft Distributor
Downtown Municipal Airport
P. O. Box 681 Shreveport, La.

Airmen's Calendar

May 13—Air Fair and terminal dedication, Woodring Field, Enid, Okla.

May 17-19—Women's Aeronautical Association National Convention, Little Rock, Ark.

May 20—First Idaho Aviation Breakfast Flight of 1951 Season, Gooding, Idaho.

June 13-16—Aviation Writers Association Convention, Hotel Commodore, New York City.

June 27-29—Mid-year meeting of ADMA officers and directors, The Homestead, Hot Springs, Va.

July 15 — Jaycee Western Flight Breakfast, Ellensburg, Washington.

August 15-19—Fifth Annual All-Woman Transcontinental Air Race, Santa Ana, Calif., to Detroit, Mich., sanctioned by Ninety-Nines, Inc., Mardo Crane, Race Committee chairman.

August 22-26 — International Convention, the Ninety-Nines, Mackinac Island, Michigan.

been announced by O. A. (Mrs. Walter H.) Beech, president of Beech Aircraft. During World War II Beech produced over 7,000 of these twins for military service. The new RCAF twins will replace C-47-type Dakotas, and will be outfitted for navigation training, pilot training and transport. Quantity, said to be "large," was not specified.

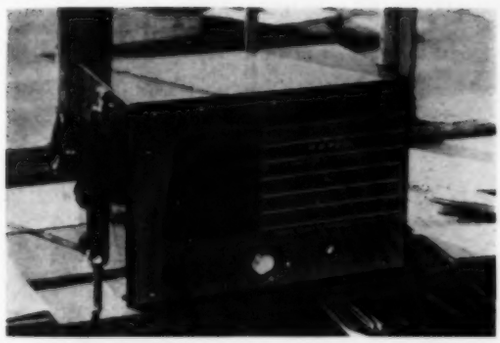
PRATT & WHITNEY HAS LICENSED NASH-KELVINATOR to produce 2,500-hp. Double Wasp aircraft engines for the military at Milwaukee and Kenosha, Wisconsin. Other current Pratt & Whitney licensees include Ford (3,800-hp. Wasp Major), Dodge (J-48 Turbo-Wasp and afterburner), and Continental Aviation Engineering Corp. (Wasp).

DOUGLAS AIRCRAFT'S TULSA FACTORY is being re-established for production of the Boeing B-47 Stratojet, with Harry Woodhead, division general manager, and Harold Hynd, plant superintendent, heading a staff of 150 key personnel from three California plants. Heavy employment will not begin until late Summer. . . . **NEW GENERAL ELECTRIC AIRCRAFT SERVICE CENTERS** have been established at Dallas and Los Angeles to provide overhaul and modification of B-36 remote control turret systems (Dallas) and J-47 jet engine overhaul and modification (Los Angeles). . . . **GLENN L. MARTIN'S FIRST MILITARY SALE OF 404 AIRLINERS** has been made to the U. S. Coast Guard, which ordered two.

NEWEST BEECH DISTRIBUTOR IS OLD-TIMER CURREY SANDERS of Shreveport, Louisiana, former Beech dealer for Ark.-La.-Tex. area embracing South Arkansas, North Louisiana and East Texas. He's shown signing on the dotted line (center) as Mrs. Olive Ann Beech, president, and Commercial Sales Manager Leddy Greever of Beech Aircraft Corp. look on. Sanders began flying in 1917 and it has been a business with him ever since. He has been a pioneer in executive aircraft sales, handling some of the earliest multi-engine corporate-owned transports to be operated in the United States. G. E. Penn of Longview, Texas, former Beech distributor for the Ark.-La.-Tex. area, sold his hangar and retired.

—(Beechcraft Photo.)

A USEFUL LOAD TWO AND ONE-HALF TIMES HEAVIER THAN ITS EMPTY WEIGHT has been carried several times by a 125-hp. Piper Super Cub at the factory—a weight ratio never achieved by any airplane, it is believed. Gross weight was 3,000 lbs. Empty weight is only 845 lbs. Normal approved gross weight is 1,500 lbs. but 2,000-lb. gross weight is allowed for dusting and spraying under Part 8 of CAR for special purpose flying. Landings in every case were made at 3,000-lbs. gross. . . . **ADDITIONAL NAVION SERVICE AND SPARE PARTS FACILITIES** are being constructed at Ryan factory, San Diego. ★ ★ ★



NEW NARCO GROUND VHF COMMUNICATION STATION

Air Associates, Dallas Branch, now offers the new NARCO radio-telephone for an inexpensive VHF ground installation. This new unit is compact and does not require any special installation. It can be set up anywhere for use by airport operators, feeder airlines and similar operations which have a requirement for reliable VHF communications. Both the VHF transmitter and receiver are crystal-controlled to assure maintenance of proper frequency.

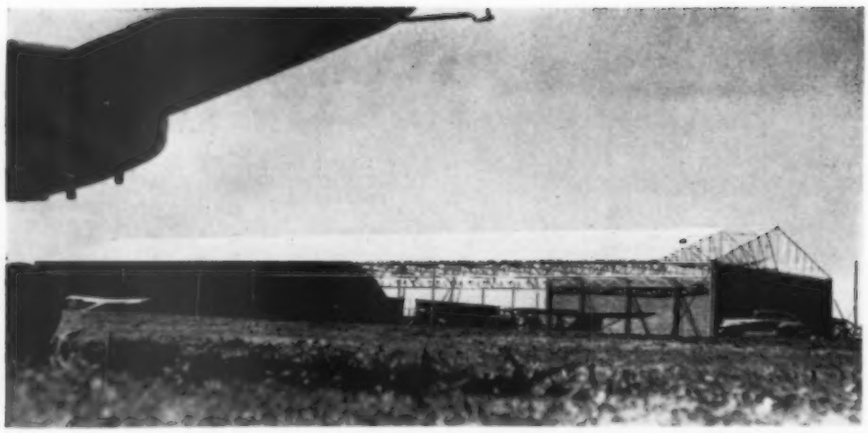
The NARCO GROUND VHF COMMUNICATION STATION is now available from AIR ASSOCIATES, Dallas stock, at $450 plus tax. Write or wire Air Associates, Love Field, Dallas, for further information.

AIR ASSOCIATES Inc.

3200 Love Field Drive, Dallas 9, Texas

Main Office . . . . . Teterboro, New Jersey

Branches . . . . . Chicago, Dallas, Glendale, Miami



HERE'S A TYPICAL CASE OF MATERIAL SHORTAGES POSING NO SERIOUS PROBLEM FOR AN ENTERPRISING AIRPORT OPERATOR—a new $50,000 hangar started last January on the Irving Airport 6 miles west of Love Field in Dallas, Texas, is scheduled for completion in May. Designed to accommodate 80 average-size private aircraft, the new hangar also incorporates an 85 by 65-ft. shop behind the center section of the main hangar building. Construction is of concrete blocks and steel, completely fireproof. Track-type doors permit full opening of the 224-ft. front. Depth of hangar is 135 ft. Operator Troy Vencill, in Dallas aviation since 1922, is equipping his obstruction-free runways with lights for 24-hour service. Transportation to and from Dallas and Ft. Worth is available.

Questions and Answers for Airport Operators

An Old-Timer Looks at Mobilization

THIS department was hunched over its typewriter getting ready to pound out the answer to a couple of questions when we had a visitor. It was a character we call "Old Folks" because he has been running airports for so long. He looked over our shoulder and decided that the question we had could be answered just as well next month because he had some advice he wanted to hand out, so we practically let him write our column this month. The words may be ours, the thoughts are his.

There are a great many airport managers and city and county officials who were not in positions in which it was necessary for them to look after the interest of airports during the second World War. Yet there are a number of things involved in our present mobilization effort which may parallel conditions that existed at that time. We have discussed some of these in this column in previous months, but there is a need that may not be immediately recognized which requires considerable long-range planning and a broad view of conditions which may arise. Whenever employment in defense efforts, coupled with increased personnel in the armed forces, begins to affect the labor market, it has its effects upon the manpower necessary to run airports, and whenever the supply of materials becomes short because of increased defense demands, it can seriously affect the efficient and continuous operation of airports.

While some airports may be reactivated as military bases, and many of our readers will be concerned with this phase, those airports which serve transient civil aviation of a heavier character may expect also a sharper rise in the volume of military traffic moving across the country in ferrying, training or other missions. This in itself makes such civil airports and their continued good operation even more vital in the air transportation picture. Our civil aircraft, both scheduled and non-scheduled in such periods, are moving to a greater extent in the transportation of men and goods actively engaged in production of defense materials and on defense projects.

FOR FIXED-BASE OPERATORS, this Narco VHF transmitter and receiver provides two-way ground communications with aircraft on the new "unicom" frequency of 122.8 mc. or other channels for which it can be equipped. Self-contained, it operates on 115-volt, 50-60-cycle power supply and is crystal controlled. Dimensions are 12 by 7.5 by 8 ins.
—(Narco Photo.)

Survey Airport Resources

With that in mind, it seems necessary for those who are responsible for airports today to survey their resources in detail so that there may be no impairment in the availability of the services they offer to all air transportation.

First there is the problem of manpower. The men who work on airports in maintenance, service and operations, acquire skills and ability which will be needed to a great extent as traffic increases. The manpower picture on the airport should be surveyed carefully and reorganized, if necessary, to preserve those skills.

Among the things that may tend to reduce the numbers of those now experienced in such operations is the tighter labor market with better paying jobs available off airports. If airport employes are not paid salaries or wages commensurate with their responsibilities and abilities, forces may be depleted by more attractive offers elsewhere and it may become more difficult to get people who can do a good job. This applies even to the janitors and porters.

Those who managed airports in the last period of mobilization very well remember when they had to get by with forces so short and unskilled that they could not keep up their standards of operations. In the long run it probably cost more money than a constructive evaluation of the organization and the payroll. It may be cheaper in the long run to keep skilled employes by paying better salaries. Old Folks told us that at one time the only test he could apply to a prospective employe was one to determine whether the body was still warm and breathing and he never wants to go through that again when he had 80-year-old men trying to do a boy's work. Incidentally, he says they did all right but he did not have enough of them.

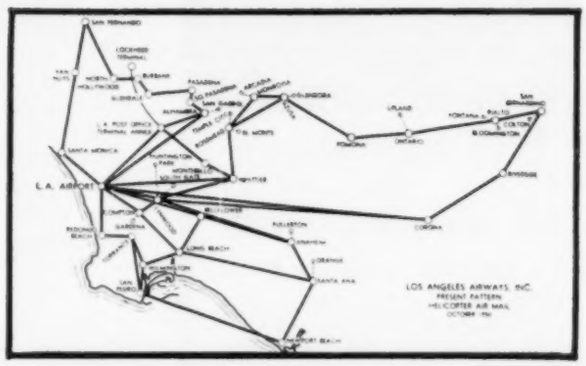
Equipment Maintenance

Equipment should be closely inspected and maintenance brought up to date for top performance. Mowing machines, trucks, heating plants, plumbing, sewage and water plants all should be put in good operating shape while it is still possible. If the

(Continued on page 39)

CLARENCE M. BELINN has been in aviation since the 20's and is the man who put helicopters "on the map" for commercial operation. His Los Angeles Airways was granted the first CAB certificate for scheduled helicopter commercial service and has proved an outstanding success. Mr. Belinn is shown with the world's first helicopter to attain a service life of 4,000 hours and to be type-certificated for instrument operation.

FROM HEADQUARTERS at Los Angeles International Airport, Los Angeles Airways' Helicopter Mail Service covers more than 45 communities three times daily. Its Sikorsky S-51 Helicopters operate day and night in all weather. In more than 3½ years of continuous operation, more than 200,000 flights have been completed, more than 13 million pounds of mail carried.



600% longer bearing life for world's first HELICOPTER MAIL SERVICE

"Lubrication with TEXACO REGAL STARFAK SPECIAL has increased the life of flapping link hinge bearings from 200 to 1,200 hours—assuring greater safety and saving our company real money,"

says Clarence M. Belinn, President
Los Angeles Airways, Inc.

Needle bearings in helicopter rotors present a tough lubrication problem—and failure cannot be tolerated. The lubricant used must stand up under extremely high pressures . . . must cling to bearings in spite of oscillating motion and the centrifugal force of the rotor head which tends to sling the grease away from the impact surfaces.

Texaco Regal Starfak Special does an unbelievably fine lubricating job here—as evidenced by the 600% increase in needle bearing life cited above.

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Adds two-way VHF communication. System includes tunable VHF receiver and a five-channel, crystal controlled VHF transmitter. As many as four of these transmitters may be installed providing up to 20 channels.

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Gives you the combined advantages of the type 11A and the Type 17 systems. You get two-way VHF communication and LF range reception, as well as rotatable loop navigation.

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AERO COMMANDER

(Continued from page 20)

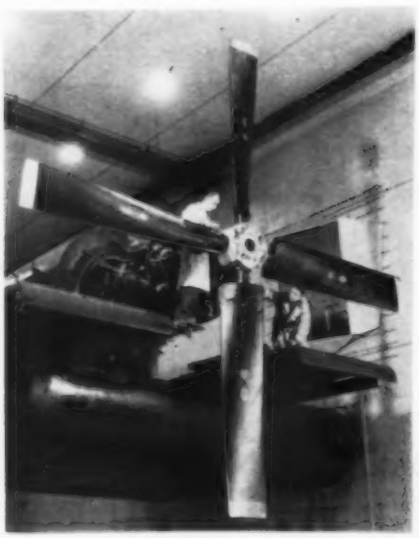
schedules with its new metal-bladed, quick-feathering, constant-speed propellers.

All of the major tooling and jigging had been completed except the forward fuselage assembly jig. It required only the finishing touches. Components such as wing center sections and outer wing panels were in their respective jigs and in production. Control surfaces and stabilizers were in their jigs and in production. Behind them the pipe-line for small parts was beginning to fill, racks and bins well supplied with finished parts awaiting final assembly. Landing gear struts, wheels and parts were ready for installation.

By the time the first airplane rolls off the line early in June, well over $1,000,000 will have been invested in engineering and production of the Aero Commander. Tooling and jigging will represent an investment of more than $400,000.

Basically, the Aero Commander incorporates comparatively simple structures. In it are several innovations but it is generally of conventional construction, utilizing aluminum alloy sheet and standard extruded sections. Critical and expensive parts such as complicated castings and forgings are practically non-existent in the airplane. The use of machined parts and welded assemblies has also been minimized. The airframe weighs but 1,400 lbs.

Innovations include the use of automatic riveting machines to fabricate



TURBO-HYDROMATIC PROP for turbine engines of over 5,000 hp. is shown in test cell at Hamilton Standard Division of United Aircraft Corp. Third in an HS series for turbines to reach USAF or Navy testing, this one has 19-ft. diameter, uses electronic control to regulate rapid-pitch changing mechanism incorporating two 5-lb. hydraulic pumps.
(Hamilton Standard Photo.)

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aft fuselage skin panels from skin riveted to longitudinal Z-section stringers. These panels are then hand-riveted to ring frames to complete the semi-monocoque structure. The aft fuselage section consists of only 5 skin panels fastened to 10 rings and 2 semi-bulkheads. The forward fuselage section uses stringer construction for top and bottom panels. This type of fuselage construction is said to effect savings of 30 per cent in labor and 10 per cent in weight over conventional or ordinary methods.

Incidentally, all skin surfaces are flush riveted.

The center wing section is produced as a single unit. It is a conventional 2-spar rib-and-stringer-type wing, the main spar located farther back than usual with a large overhanging nose section. The front spar is located 35 per cent rearward and the rear spar 67 per cent. The use of quick-fitting joints for the outer wing panels was eliminated to avoid excess weight and in consideration of difficulties in obtaining special forgings. The wing joint is thus made by over-lapping. This effected a saving of 50 lbs. in weight per airplane and provides a continuity of wing structure, eliminating the need for routing outer wing loads through quick-connect fittings. In replacing outer wing panels on an Aero Commander, the complete job can be finished by two men in two days.

Sheet metal engine mounts are used,

(Continued on page 40)

SPEED AND COMFORT DOUBLE-TAKE occurred when Central Airlines boarded the Speed family (Mr. and Mrs. John G.) and the Comforts (Mr. and Mrs. Prince F. and daughters Nancy and Beverly) at Ft. Worth. That's Miss Johnette Schow, ticket agent, wishing them well. Keith Kahle, Central president, lost no time capitalizing on the event—"We've been selling speed and comfort for all we're worth and now we meet them in real life." Both families live in Ft. Worth, Central's headquarters city.
(Central Airlines Photo.)

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Capt. William C. Odom set new over-water record for light planes, flying from Honolulu to the Mainland in January, 1949. In March, Capt. Odom broke his own record, flying same Beechcraft Bonanza from Honolulu to Teterboro, N. J., 5,004 miles.

☆

ENDURANCE

Woody Jongeward and Bob Woodhouse landed their Aeronca Sedan at Yuma, Ariz., Oct. 10, 1949, after remaining aloft 1124 hours—or six weeks and five days.

☆

ALTITUDE

Sra. Ana Luisa Branger set officially-certified international altitude record of 24,504 feet in her Piper Special with Continental C90-8F engine on March 31, 1950, at Congressional Airport, Rockville, Md.

☆

SPEED

John Paul Jones of Van Nuys, Calif., broke midget plane speed record at Detroit-Wayne Major Airport Aug. 13, 1950, winning Continental Motors Trophy Race at speed of 187.785 m.p.h., in home-built plane with C85 Continental engine.

Not only in pilot acceptance, but chronologically as well, Continental is truly the first name in the field of power for utility aircraft. Continental gave private flying its first real boost by introducing the famous A-40 more than 20 years ago. And because it has consistently pioneered in the things that mean safer, surer flying, Continental is pilots' overwhelming first choice today.

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The CERTIFIED BEECHCRAFT SERVICE STATIONS have assembled for you the finest facilities possible, trained the most capable staff in factory methods and sell only authorized parts and accessories. This means no time lost through lack of proper tools, parts or know-how— *all aimed at saving you valuable time and money.* **One visit will convince you there is a difference in the service you receive.**

QUESTIONS and ANSWERS

(Continued from page 34)

manager knows of a weakness anywhere in his equipment he should not wait until skilled labor and materials are so short in supply that they are unobtainable or too costly. This applies to little items as well as big items. For example, there is scarcely an air terminal that does not have some mechanical door closers, and usually such airports have some two to a dozen of these, which have become inoperative, lying around. They should be fixed up, cannibalizing parts wherever necessary, in order that replacements be available if those in use fail to function.

Keep Turf Areas Clean

If the burners and grates in a heating plant are on the ragged edge of maintenance they should be brought up to par. Rotary and sickle bar mowers require considerable maintenance and should be kept in tip-top shape from day to day. This applies, too, to the tractors which draw them. A large measure of damage to knife bars and blades comes from the condition of the field itself if, over a long period, concerted efforts have not been made to remove rocks, stakes and other objects which may tend to nick or damage the cutting edges.

A good many managers require that their tractor operators mount a box on their tractors so that they can pick up and deposit there anything they find on the field that might endanger the equipment. A lot of the damage which might occur to equipment will take forethought and a program to overcome. Equipment left exposed to the weather will deteriorate rapidly. Equipment used seasonally, such as mowing equipment or snow removal equipment, when stored for the inactive season, should be in tip-top shape. Fire equipment which is more vital during periods of material shortage and increasing civil and military activity should have the highest possible degree of maintenance and inspection.

Then there is the matter of spare parts. We do not recommend hoarding in any sense, but it seems vital at this time to **evaluate your inventory and your stocks,** fill in any shortages and set up a good inventory system far enough in advance so that you may not reach a point where any needed facility or any needed service be compelled to shut down for lack of replacements. We are thinking especially of lights and the many components that are needed to keep lights functioning. When it takes months to get needed parts and supplies, as it did in the early 40's, failure to recognize the minimum inventory required might very well result in the non-functioning of a light system and the resultant stoppage of operations of necessary civil and military aircraft during the night hours.

The three things just suggested are not, by any means, the whole picture but they are the integral requirements for a well-planned program of uninterrupted and efficient operations. We won't discuss security here but we can't sign off without stressing again the serious results of unorganized efforts at fire prevention and fire fighting.

Fire Prevention Pays

It is suggested that every inch and every spot on the airport be inspected with an eye toward preventing fires in the first place and toward fighting them instantly in a well organized effort in case they start. This should cover every detail down to the placement and operating condition of even the smallest fire extinguisher. Inspection tags should be on every extinguisher and should be inspected and re-inspected to see that the extinguishers are full and operative. Your fire marshal or fire chief will be glad to help you.

Look over the levees around your above-ground fuel storage. See that they are high enough and sound enough to prevent overflow or leakage in the event of an accident to your storage tanks. If high octane gas should leak into sewage lines, it would be necessary to close down operations in every shop and building having a sewer connection, due to the hazards.

Those are just examples of the many details to be checked to be ready for uninterrupted operations. The destruction of an aircraft, hangar or any other facility which may become increasingly hard to replace is a direct blow at the adequacy and efficiency of our air transportation facilities.

While you are thinking about this phase, don't forget that as you lose employes, you lose training, and training is an essential if your force is to be effective. A good training program is a must. ★ ★ ★

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FIRST TEST FLIGHT of the 5-place Regent Rocket designed and built at Henderson, Texas, by Regent Aircraft, was made April 22. The airplane was designed by R. S. (Pop) Johnson, financed by local citizens, and is powered by a 260-hp. Lycoming. A cruising speed of over 190 mph. is claimed.
(Regent Aircraft Photo.)

AERO COMMANDER

(Continued from page 37)

effecting a savings of 4 lbs. per mount over the conventional tubular installation. This follows the trend established in this country by the Douglas A-26 light bomber. Incidentally, there is slight over-all resemblance in the Aero Commander to the A-26 and its predecessor A-20; those who designed the Commander figured prominently in the Douglas A-20 and A-26 projects originally.

Control surfaces are all-metal for ease of maintenance. In this the company followed the trend established by small plane producers such as Luscombe, utilizing main-spar structures with ribs covered by corrugated skin. Weight savings and improved strength were thus achieved.

The basic Aero Commander design has remained unchanged since the prototype first flew. It was powered with 190-hp. Lycomings. The production version, designated Model 520, is powered with 260 Lycomings. It incorporates a slightly-changed fuselage. Nose shape has been improved and appears slightly longer, the windshield has been given more slant instead of its rounded appearance, and the bottom fuselage line has been carried slightly farther aft before sweeping up to the tail cone.

"Wind tunnel tests have already proved that the production model is 6 per cent more efficient, due to a better fineness ratio from nose to tail," Smith explained.

Last fall Smith and his engineers scheduled completion of the first production model in 270 days, with four more airplanes nearing completion following closely behind it. "We're on schedule after overcoming several difficulties and we intend to stay on schedule," he commented last month. "As production gathers steam, we expect to introduce to the industry some interesting examples of progressive aircraft manufacturing."

While we were there, Test Pilot Bert Bantle made two take-offs with one engine inoperative. The dead engine wasn't even started.

Design of the Aero Commander cabin offers real convertibility. Standard version will be 5-place, having two pilot chairs up front and a single 3-place rear seat. Three optional arrangements are available: (1) Six-place, with 6 separate chairs; (2) six-place, with three chairs and a 3-place sofa seat running lengthwise, and (3) a cargo version having double cargo doors on the right side for a clear-span opening measuring 48 by 50 ins. An elaborate wooden mock-up in the shop is being used to perfect finishing cabin touches.

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JUST AMONG OURSELVES

(Continued from page 9)

the United States Army at Fort Myer, Virginia. In recommending that the Navy immediately purchase some aircraft, one of the naval observers asserted that the chief features of the airplane "have been discovered and their correctness established, further experiments being needed only to change and perfect some of the mechanical details and methods of control."

Their recommendation was pigeonholed and it was not until May 8, 1911, that the Navy finally gave Glenn Curtiss an order for two "Triads" out of the first naval aviation appropriation of $25,000. Significantly, the United States Navy over the ensuing forty years has had a great deal to do with aviation development along the lines of "changing and perfecting mechanical details". Had it not been for the U. S. Navy's long interest and intelligent application of aircraft to naval warfare, aviation in these United States would be far behind its present stage of development. The forty-year naval record of underwriting new designs and research into developments and ideas far removed from conventional trends is a record that speaks for itself and needs no recapitulation in these limited columns.

True it is that aviation has suffered down through the years from the battleship, die-hard admirals whose fight against air power amounted to what seemed a conspiracy. Fortunately their tribe has practically disappeared and their howls are now mere squeaks in Washington cocktail lounges, far removed from the present crop of naval airmen, no longer wearing the old Navy tie of their predecessors, who, in the early days of Franklin Roosevelt, passed down an order that land-based aircraft must not fly beyond 100 miles at sea!

We salute U. S. Naval aviation on its 40th birthday, especially conscious of the terrific job it is doing in the Korean mess. ★ ★ ★

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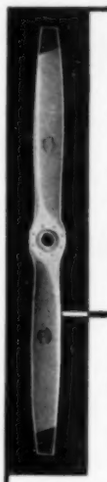

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10-A ELECTRA: No. 879M. Engines 490 hours since overhaul. 1,000 hours since airframe overhaul. Ten passenger. Easily converted to cargo. Heavy duty motor mounts and gear. A real load carrier. Midwest. $16,000. McIntire Associates, 505 N. Ervay, Dallas, Texas.

LODESTARS: Seven available. No. 6779NM. 1206 hours total time airframe. Low time engines. Airline 14 passenger interior. Excellent airframe for conversion to executive plane. Tanks sealed recently. Located in Southwest. $48,500. McIntire Associates, 505 N. Ervay, Dallas, Texas.

NAVION

NAVIONS: No. 9879HM. 1947 model, new 1949 205 Horsepower engine with only 62 hours. 391 hours airframe. Licensed March. One owner since new. Always hangared. Never cracked. West Coast. $5,500. No. 5559KM Ryan 205. 200 hours total time. Custom upholstered in simulated Leopard skin. Two way low frequency, Two way VHF, Narco Omni Range. Lear ADF. Full blind. Extra ventilators. Extra soundproofing. Hangared. Never cracked. This is an exceptional plane. Located in Southwest. $7,950. McIntire Associates, 505 N. Ervay, Dallas.

PIPERS

SUPER CUBS, CLIPPERS, PACERS; No. 8708KM Super Cub 105. 50 hours total time. Skiis. Like new. Northern Midwest. $3,000. Pacer, No. 8535KM. 105 hours. Modified landing gear. Licensed March 1951. Wing tip once damaged. Completely repaired. Like new. In the West. $3,600. McIntire Associates, 505 N. Ervay, Dallas, Texas.

STINSONS

VOYAGERS & STATION WAGONS: 26 available. No. 7825MM has only 186 hours. McCauley propeller. Licensed February 1951. Wheel Pants and Hallicrafter. Two way radio. Like new. Never damaged. Only $3,310. Midwest. McIntire Associates, 505 N. Ervay, Dallas, Texas.

REPUBLIC

SEABEES: 20 available from $1,500. No. 7347KM 230 hours total time. Always hangared. Never damaged. Interior excellent. New license on sale. All bulletins complied. Located in Southwest. Price too low at $1,615. McIntire Associates, 505 N. Ervay, Dallas, Texas.

Allison Wins Record U.S. Air Force Contract for Super-Jet Engines

New Turbo-Jet Leads with Greatly Increased Power and Fuel Economy

ONCE more Allison makes a major contribution to America's air power—a new Super-Jet aircraft engine that excels in power and fuel economy any other jet engine ever released for production.

It's the new J35-A-23 developed in cooperation with the Air Materiel Command—a completely new design—yet retaining the same basic diameter of the famed J35 series. This new engine develops more power per square foot of frontal area than any other jet yet produced. Four of these new engines will be installed in the YB-47C Boeing Strato-Jet. They will produce more power than the six jet engines now used in previous models of the B-47 series.

This J35-A-23 now has been selected by the Air Force—in open competition—for a record-size production contract. Behind this latest award is Allison's unequaled experience in the design and production of more than 10,000 jet engines with total time in the air of over 700,000 hours.

This accents the length and breadth of Allison jet engine experience where it counts most—in the air. Many of these flight hours have been accumulated in Korea powering U. S. fighters for support of ground troops and keeping the skies clear of enemy opposition.

Production will continue at Allison on those combat-proved types of jet engines in addition to the new J35-A-23 Super-Jet and the new T40 Turbo-Prop engines.

The record production order for the new Allison engineered Super-Jet will be met through the combined facilities of Allison and the Chevrolet Motor Division which will build a substantial quantity of these Super-Jets.

GM
GENERAL MOTORS

Builders of J35 Axial, J33 Centrifugal Flow Turbine Engines and T40 Turbo-Prop Engines

Allison

DIVISION GENERAL MOTORS CORPORATION
INDIANAPOLIS, INDIANA

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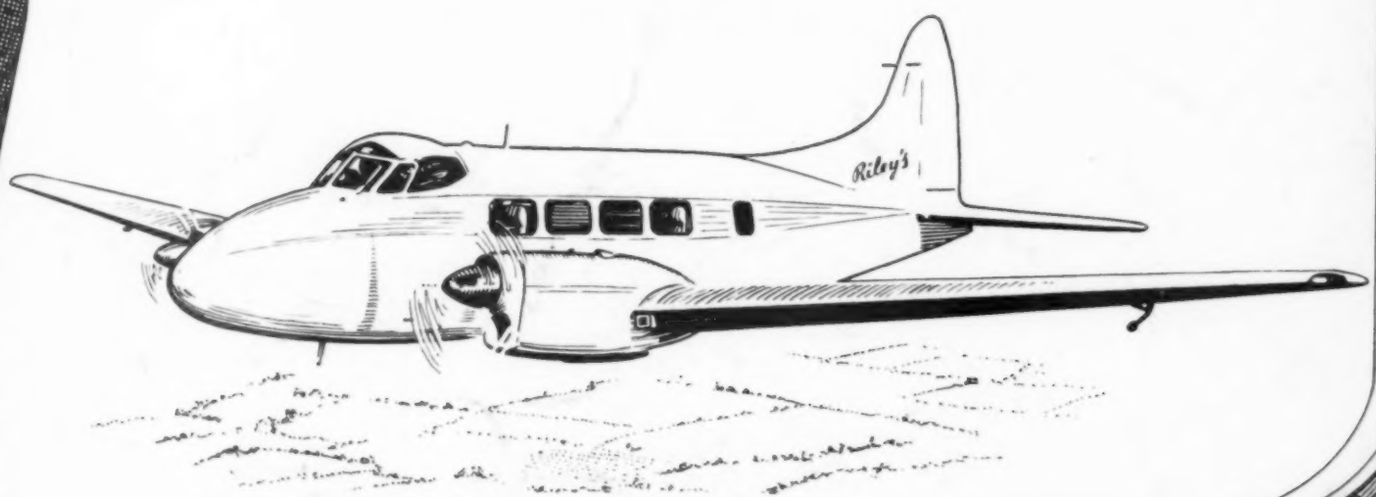

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